Full wwPDB EM Validation Report ⓘ

Dec 18, 2022 – 05:42 am GMT

PDB ID	:	7A09
EMDB ID	:	EMD-11602
Title	:	Structure of a human ABCE1-bound 43S pre-initiation complex - State III
Authors	:	Kratzat, H.; Mackens-Kiani, T.; Ameismeier, A.; Cheng, J.; Berninghausen, O.; Becker, T.; Beckmann, R.
Deposited on	:	2020-08-07
Resolution	:	3.50 Å(reported)

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

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

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

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

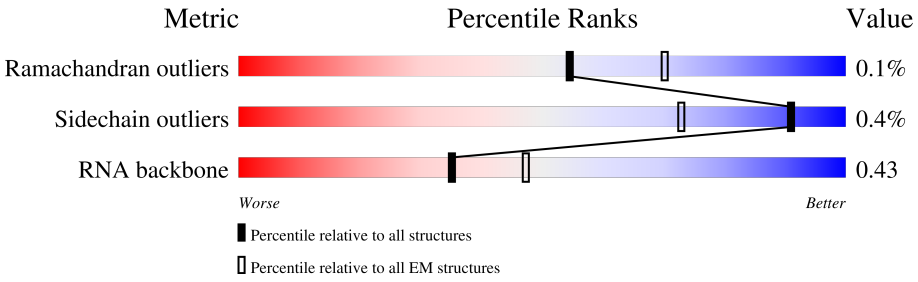
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

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 3.50 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.



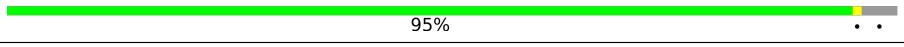
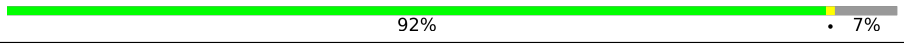
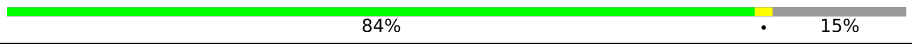
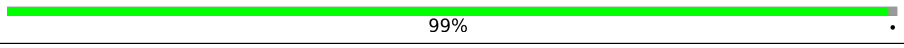
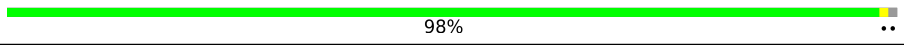
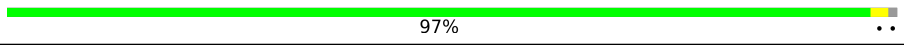
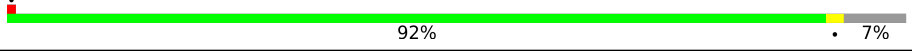
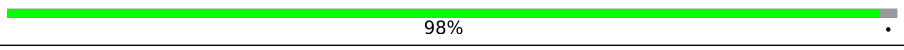
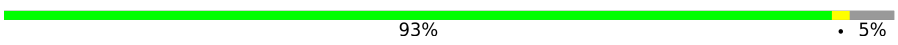
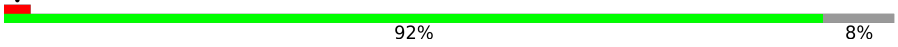
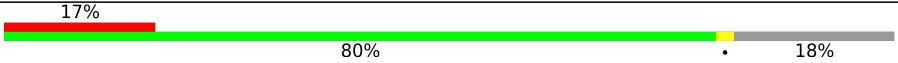
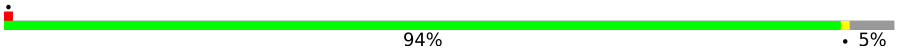
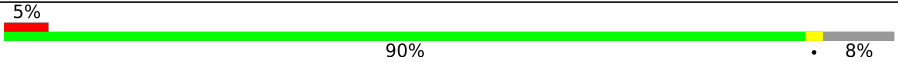
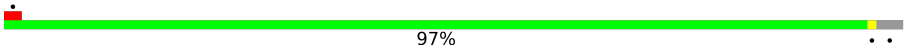
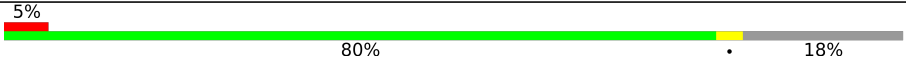
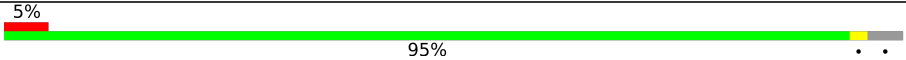
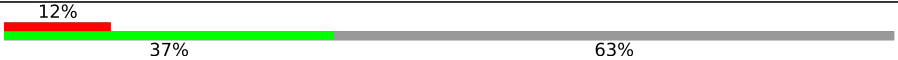
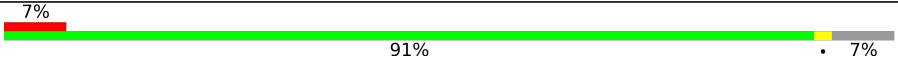
Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	295	73% 27%
2	p	264	80% 20%
3	d	293	73% 26%
4	Q	115	88% 12%
5	q	263	97%
6	W	25	96%
7	r	249	88% 11%
8	s	194	89% 11%

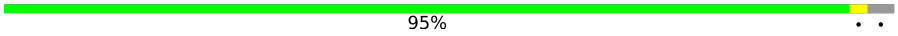
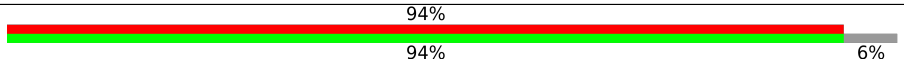
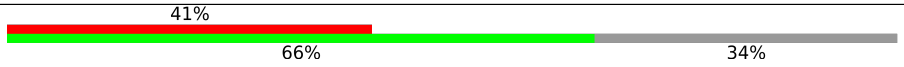
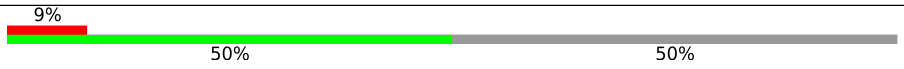
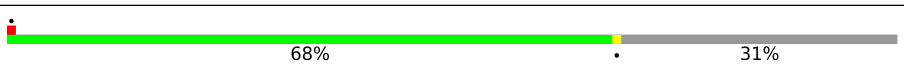
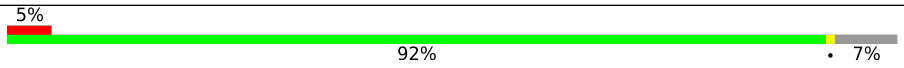
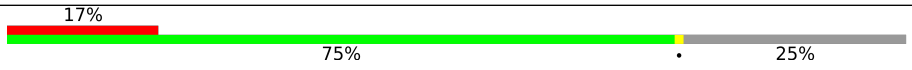
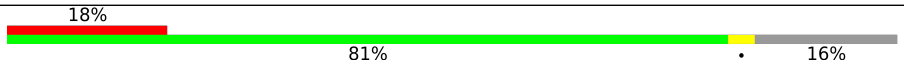
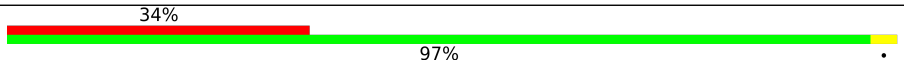
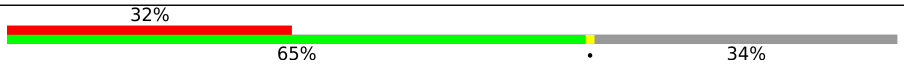
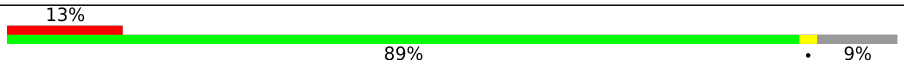
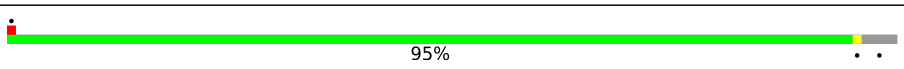
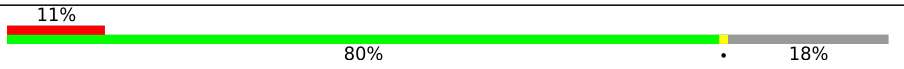
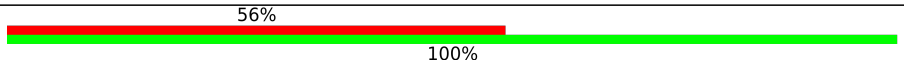
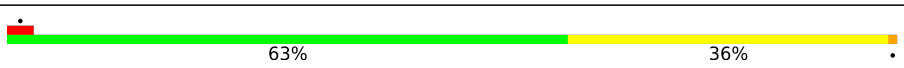
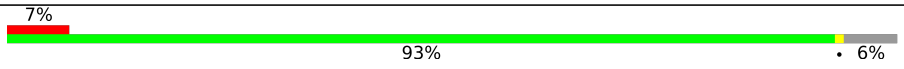
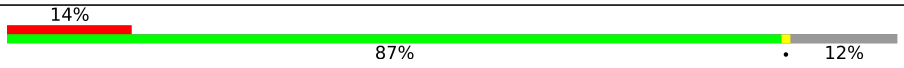
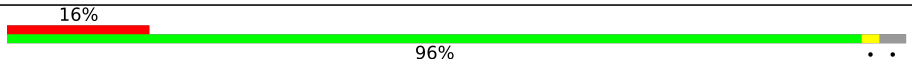
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	t	208	
10	c	194	
11	n	158	
12	m	151	
13	y	83	
14	D	130	
15	z	131	
16	R	84	
17	T	59	
18	2	1721	
19	w	135	
20	b	243	
21	e	204	
22	u	165	
23	v	132	
24	o	145	
25	g	146	
26	k	152	
27	x	145	
28	h	119	
29	P	125	
30	S	69	
31	l	56	
32	U	156	
33	V	317	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
34	i	151	
35	j	143	
36	G	112	
37	I	325	
38	B	814	
39	A	1382	
40	C	921	
41	E	445	
42	F	357	
43	H	352	
44	K	218	
45	L	564	
46	M	374	
47	J	599	
48	N	548	
49	X	78	
50	f	75	
51	4	333	
52	O	315	
53	Y	472	
54	Z	113	

2 Entry composition

There are 61 unique types of molecules in this entry. The entry contains 122168 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	a	216	Total	C	N	O	S	0	0
			1705	1083	299	315	8		

- Molecule 2 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	p	211	Total	C	N	O	S	0	0
			1715	1088	307	306	14		

- Molecule 3 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	d	216	Total	C	N	O	S	0	0
			1674	1085	287	292	10		

- Molecule 4 is a protein called 40S ribosomal protein S26.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
5	q	255	Total	C	N	O	S	0	0
			2031	1299	377	347	8		

- Molecule 6 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	W	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 7 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	r	222	Total	C	N	O	S	0	0
			1794	1123	357	308	6		

- Molecule 8 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	s	173	Total	C	N	O	S	0	0
			1399	898	256	244	1		

- Molecule 9 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	t	199	Total	C	N	O	S	0	0
			1638	1027	322	284	5		

- Molecule 10 is a protein called 40S ribosomal protein S9.

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

- Molecule 11 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	n	135	Total	C	N	O	S	0	0
			1119	715	211	187	6		

- Molecule 12 is a protein called 40S ribosomal protein S13.

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

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

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

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

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

- Molecule 15 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	z	122	Total	C	N	O	S	0	0
			999	633	196	165	5		

- Molecule 16 is a protein called 40S ribosomal protein S27.

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

- Molecule 17 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	T	44	Total	C	N	O	S	0	0
			354	216	81	56	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	2	1721	Total	C	N	O	P	0	0
			36717	16400	6603	12003	1711		

- Molecule 19 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	w	128	Total	C	N	O	S	0	0
			1011	641	182	184	4		

- Molecule 20 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	b	224	Total	C	N	O	S	0	0
			1745	1112	314	312	7		

- Molecule 21 is a protein called 40S ribosomal protein S5.

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

- Molecule 22 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	u	95	Total	C	N	O	S	0	0
			799	524	139	130	6		

- Molecule 23 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	v	111	Total	C	N	O	S	0	0
			861	544	151	159	7		

- Molecule 24 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	o	119	Total	C	N	O	S	0	0
			980	623	183	167	7		

- Molecule 25 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	g	138	Total	C	N	O	S	0	0
			1100	699	208	190	3		

- Molecule 26 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	k	140	Total	C	N	O	S	0	0
			1162	731	234	196	1		

- Molecule 27 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	x	141	Total	C	N	O	S	0	0
			1094	685	210	196	3		

- Molecule 28 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	h	98	Total	C	N	O	S	0	0
			780	489	148	139	4		

- Molecule 29 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	P	70	Total	C	N	O	S	0	0
			557	358	101	97	1		

- Molecule 30 is a protein called 40S ribosomal protein S28.

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

- Molecule 31 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	l	54	Total	C	N	O	S	0	0
			450	282	93	70	5		

- Molecule 32 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	U	57	Total	C	N	O	S	0	0
			465	295	89	74	7		

- Molecule 33 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	V	296	Total	C	N	O	S	0	0
			2314	1464	404	434	12		

- Molecule 34 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	i	125	Total	C	N	O	S	0	0
			939	574	187	172	6		

- Molecule 35 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	j	139	Total	C	N	O	S	0	0
			1080	682	214	181	3		

- Molecule 36 is a protein called Eukaryotic translation initiation factor 1A, X-chromosomal.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	G	88	Total	C	N	O	S	0	0
			712	451	129	128	4		

- Molecule 37 is a protein called Eukaryotic translation initiation factor 3 subunit I.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	I	305	Total	C	N	O	0	0
			1497	887	305	305		

- Molecule 38 is a protein called Eukaryotic translation initiation factor 3 subunit B.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	B	536	Total	C	N	O	S	0	0
			2966	1801	580	580	5		

- Molecule 39 is a protein called Eukaryotic translation initiation factor 3 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	A	692	Total	C	N	O	S	0	0
			5385	3379	980	1004	22		

- Molecule 40 is a protein called Eukaryotic translation initiation factor 3 subunit C,Eukaryotic translation initiation factor 3 subunit C,Eukaryotic translation initiation factor 3 subunit C.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	C	633	Total	C	N	O	S	0	0
			5113	3229	907	942	35		

- Molecule 41 is a protein called Eukaryotic translation initiation factor 3 subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	E	416	Total	C	N	O	S	0	0
			3437	2202	585	630	20		

- Molecule 42 is a protein called Eukaryotic translation initiation factor 3 subunit F.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	F	269	Total	C	N	O	S	0	0
			2090	1317	356	405	12		

- Molecule 43 is a protein called Eukaryotic translation initiation factor 3 subunit H.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	H	295	Total	C	N	O	S	0	0
			2413	1532	417	449	15		

- Molecule 44 is a protein called Eukaryotic translation initiation factor 3 subunit K.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	K	217	Total	C	N	O	S	0	0
			1750	1116	288	334	12		

- Molecule 45 is a protein called Eukaryotic translation initiation factor 3 subunit L.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	L	372	Total	C	N	O	S	0	0
			3111	2011	520	563	17		

- Molecule 46 is a protein called Eukaryotic translation initiation factor 3 subunit M.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	M	340	Total	C	N	O	S	0	0
			2718	1734	459	508	17		

- Molecule 47 is a protein called ATP-binding cassette sub-family E member 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	J	576	Total	C	N	O	S	0	0
			4541	2899	779	835	28		

- Molecule 48 is a protein called Eukaryotic translation initiation factor 3 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	N	447	Total	C	N	O	S	0	0
			3617	2279	625	691	22		

- Molecule 49 is a protein called RNA recognition motif.

Mol	Chain	Residues	Atoms				AltConf	Trace
49	X	78	Total	C	N	O	0	0
			390	234	78	78		

- Molecule 50 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	f	75	Total	C	N	O	P	0	0
			1603	717	298	514	74		

- Molecule 51 is a protein called Eukaryotic translation initiation factor 2 subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	4	144	Total	C	N	O	S	0	0
			1080	679	202	192	7		

- Molecule 52 is a protein called Eukaryotic translation initiation factor 2 subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	O	296	Total	C	N	O	S	0	0
			2138	1342	384	404	8		

- Molecule 53 is a protein called Eukaryotic translation initiation factor 2 subunit 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
53	Y	414	Total	C	N	O	0	0
			2156	1296	433	427		

- Molecule 54 is a protein called Eukaryotic translation initiation factor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	Z	110	Total	C	N	O	S	0	0
			830	524	150	154	2		

- Molecule 55 is ZINC ION (three-letter code: ZN) (formula: Zn).

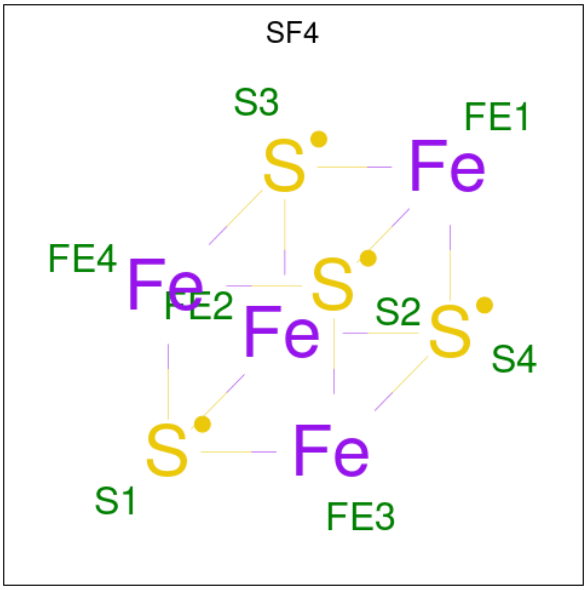
Mol	Chain	Residues	Atoms		AltConf
55	Q	1	Total	Zn	0
			1	1	
55	l	1	Total	Zn	0
			1	1	
55	U	1	Total	Zn	0
			1	1	

Continued on next page...

Continued from previous page...

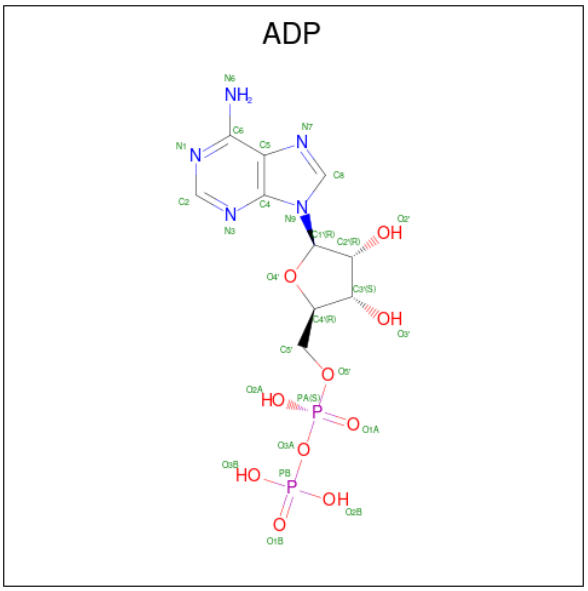
Mol	Chain	Residues	Atoms	AltConf
55	4	1	Total Zn 1 1	0

- Molecule 56 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



Mol	Chain	Residues	Atoms	AltConf
56	J	1	Total Fe S 16 8 8	0
56	J	1	Total Fe S 16 8 8	0

- Molecule 57 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).

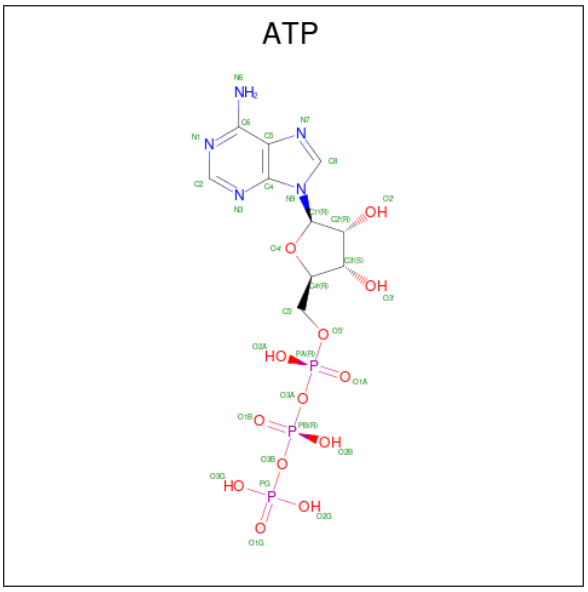


Mol	Chain	Residues	Atoms					AltConf
57	J	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 58 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

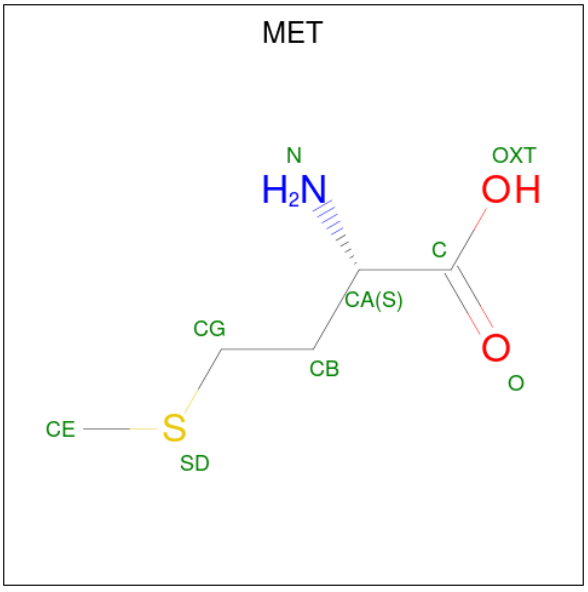
Mol	Chain	Residues	Atoms		AltConf
58	J	2	Total	Mg	0
			2	2	
58	Y	1	Total	Mg	0
			1	1	

- Molecule 59 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



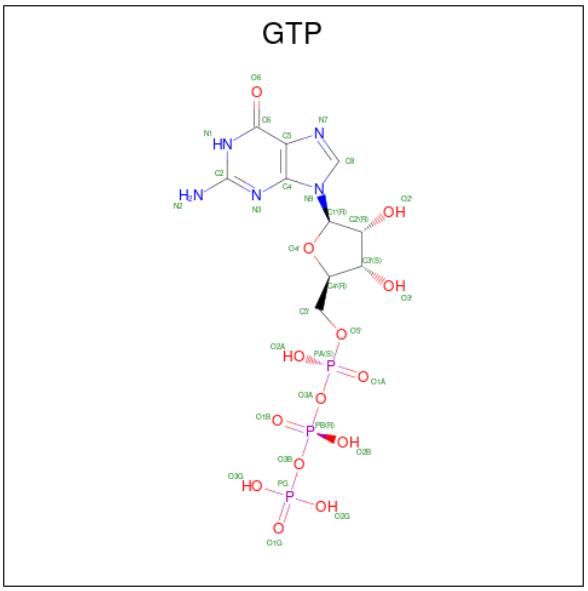
Mol	Chain	Residues	Atoms					AltConf
59	J	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 60 is METHIONINE (three-letter code: MET) (formula: $C_5H_{11}NO_2S$).



Mol	Chain	Residues	Atoms					AltConf
60	f	1	Total	C	N	O	S	0
			8	5	1	1	1	

- Molecule 61 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



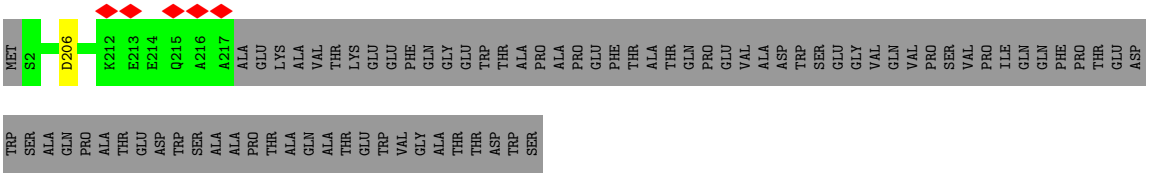
Mol	Chain	Residues	Atoms					AltConf
61	Y	1	Total	C	N	O	P	0
			32	10	5	14	3	

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: 40S ribosomal protein SA

Chain a:

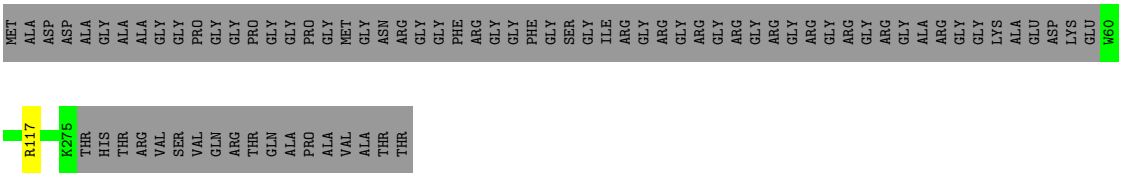


• Molecule 2: 40S ribosomal protein S3a

Chain p:

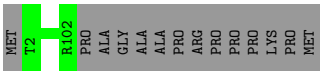
• Molecule 3: 40S ribosomal protein S2

Chain d:



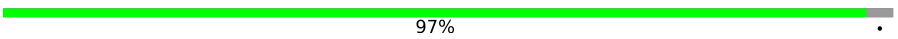
• Molecule 4: 40S ribosomal protein S26

Chain Q:



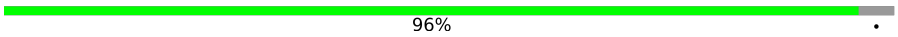
• Molecule 5: 40S ribosomal protein S4, X isoform

Chain q:



• Molecule 6: 60S ribosomal protein L41

Chain W:

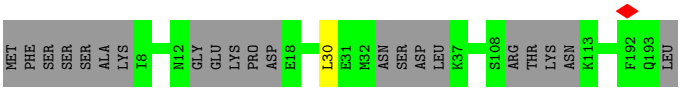


• Molecule 7: 40S ribosomal protein S6

Chain r:

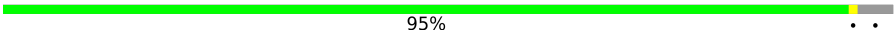
• Molecule 8: 40S ribosomal protein S7

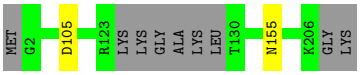
Chain s:



• Molecule 9: 40S ribosomal protein S8

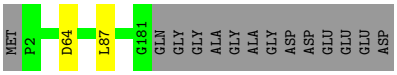
Chain t:





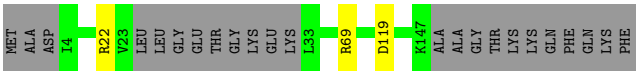
• Molecule 10: 40S ribosomal protein S9

Chain c:



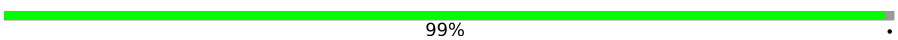
• Molecule 11: 40S ribosomal protein S11

Chain n:



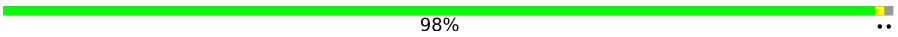
• Molecule 12: 40S ribosomal protein S13

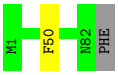
Chain m:



• Molecule 13: 40S ribosomal protein S21

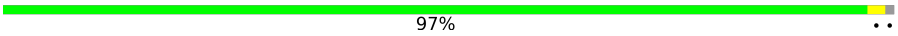
Chain y:

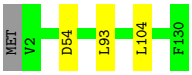




• Molecule 14: 40S ribosomal protein S15a

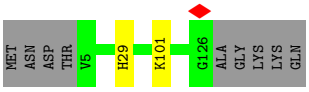
Chain D:





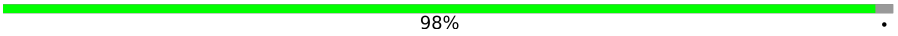
• Molecule 15: 40S ribosomal protein S24

Chain z:



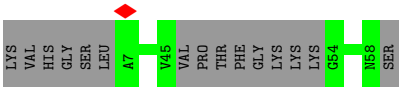
• Molecule 16: 40S ribosomal protein S27

Chain R:



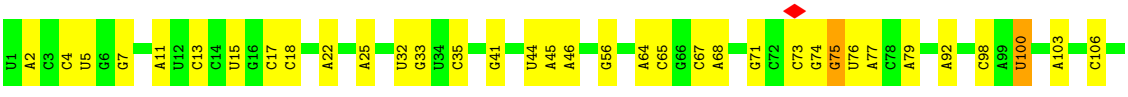
• Molecule 17: 40S ribosomal protein S30

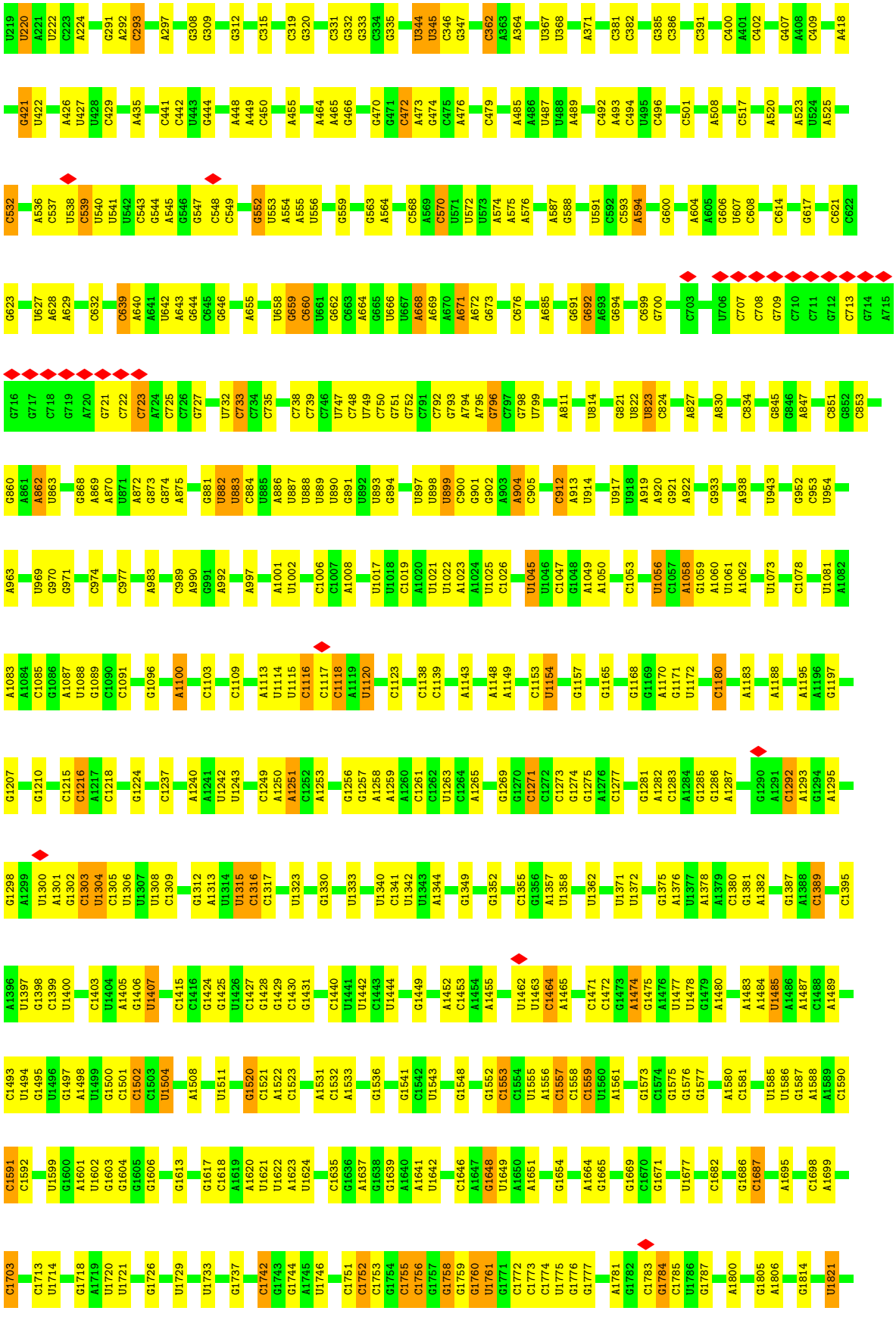
Chain T:

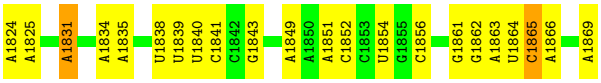


• Molecule 18: 18S ribosomal RNA

Chain 2:

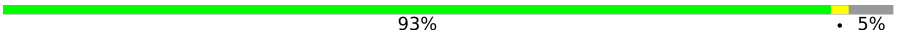


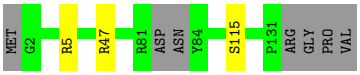




• Molecule 19: 40S ribosomal protein S17

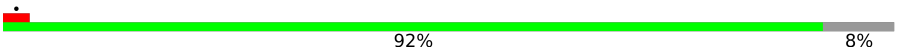
Chain w:

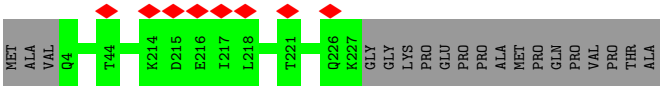




• Molecule 20: 40S ribosomal protein S3

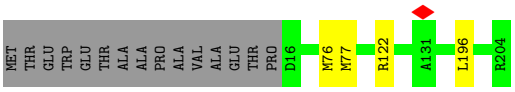
Chain b:





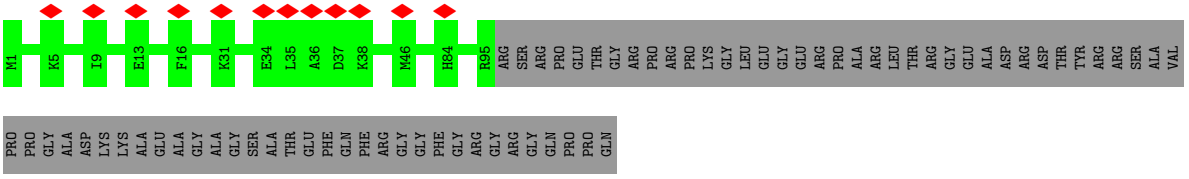
• Molecule 21: 40S ribosomal protein S5

Chain e:



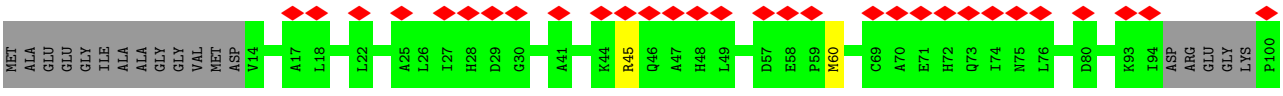
• Molecule 22: 40S ribosomal protein S10

Chain u:



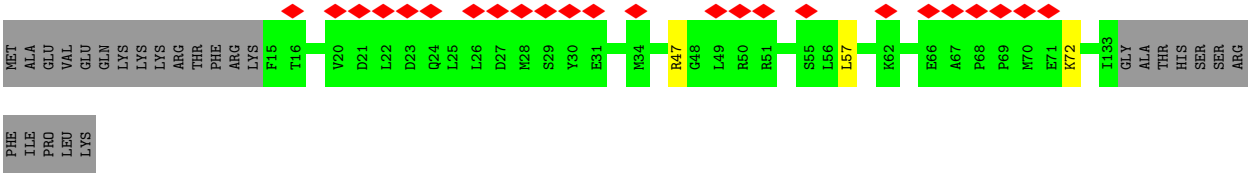
• Molecule 23: 40S ribosomal protein S12

Chain v:



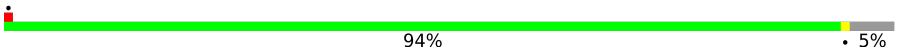
• Molecule 24: 40S ribosomal protein S15

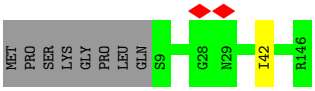
Chain o:



• Molecule 25: 40S ribosomal protein S16

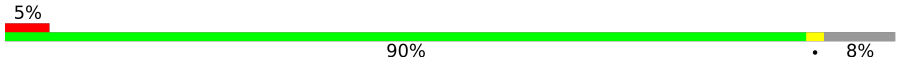
Chain g:

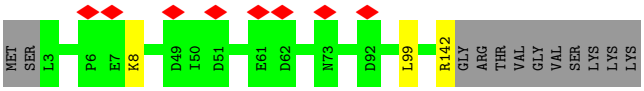




• Molecule 26: 40S ribosomal protein S18

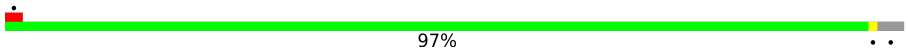
Chain k:

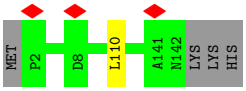




• Molecule 27: 40S ribosomal protein S19

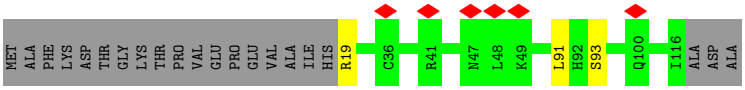
Chain x:





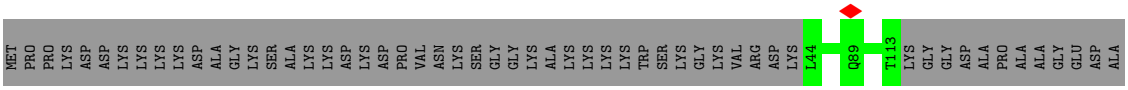
• Molecule 28: 40S ribosomal protein S20

Chain h:



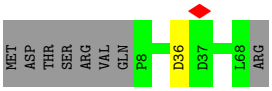
• Molecule 29: 40S ribosomal protein S25

Chain P:



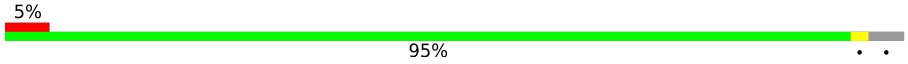
• Molecule 30: 40S ribosomal protein S28

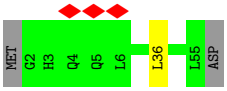
Chain S:



• Molecule 31: 40S ribosomal protein S29

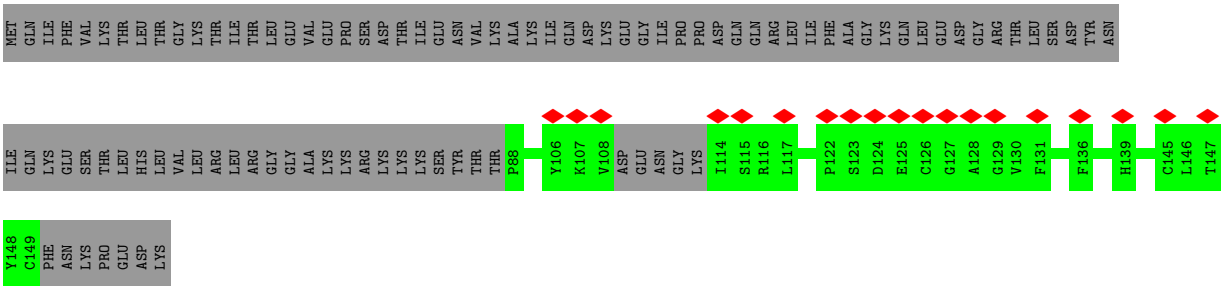
Chain l:





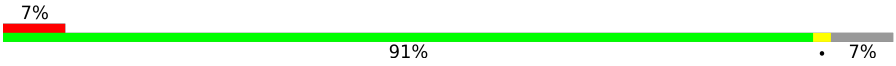
• Molecule 32: Ubiquitin-40S ribosomal protein S27a

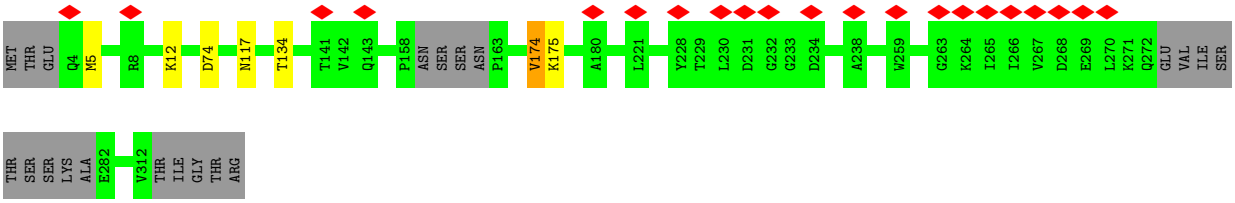
Chain U:



• Molecule 33: Receptor of activated protein C kinase 1

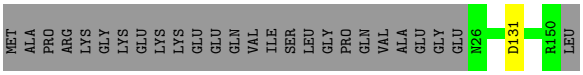
Chain V:





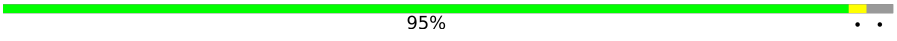
• Molecule 34: 40S ribosomal protein S14

Chain i:



• Molecule 35: 40S ribosomal protein S23

Chain j:

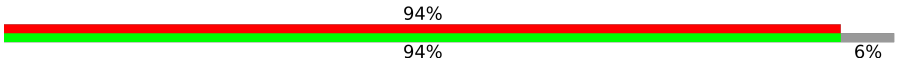


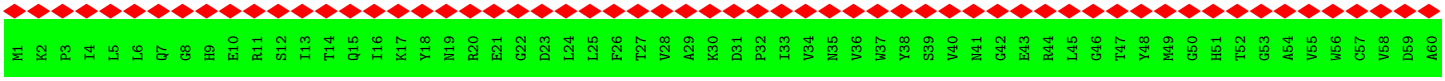
• Molecule 36: Eukaryotic translation initiation factor 1A, X-chromosomal

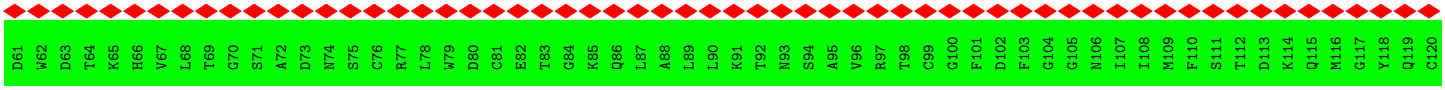
Chain G:

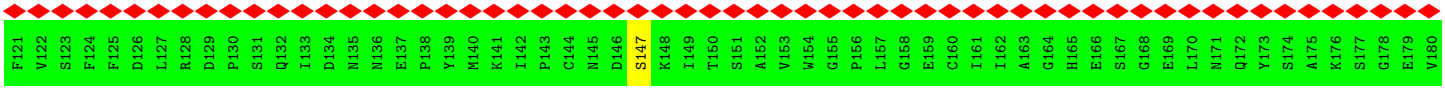
• Molecule 37: Eukaryotic translation initiation factor 3 subunit I

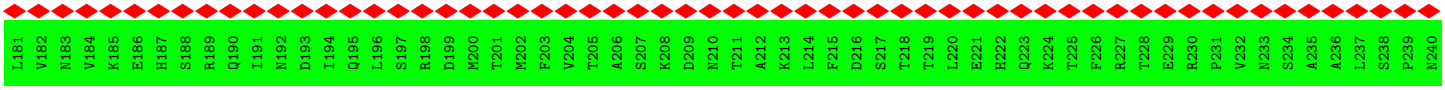
Chain I:

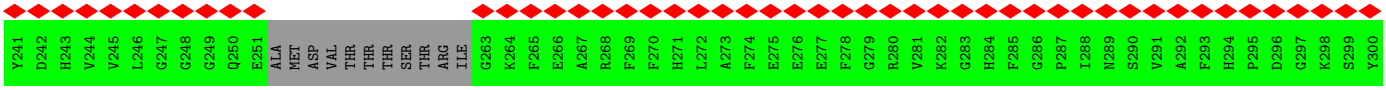


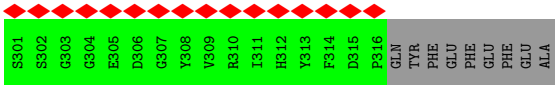






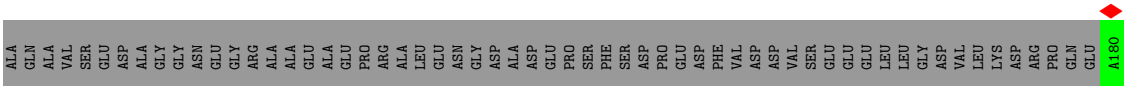


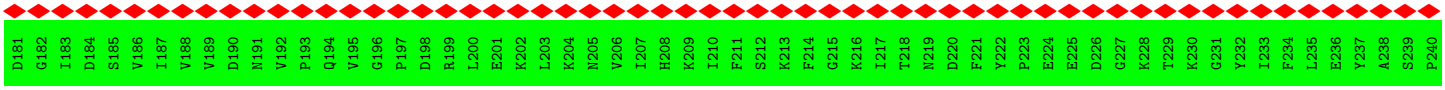


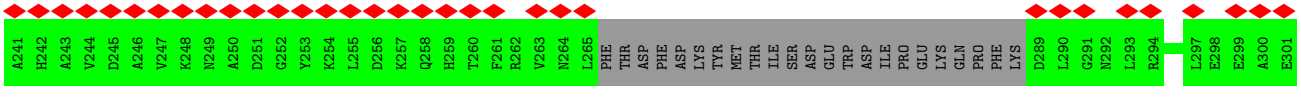


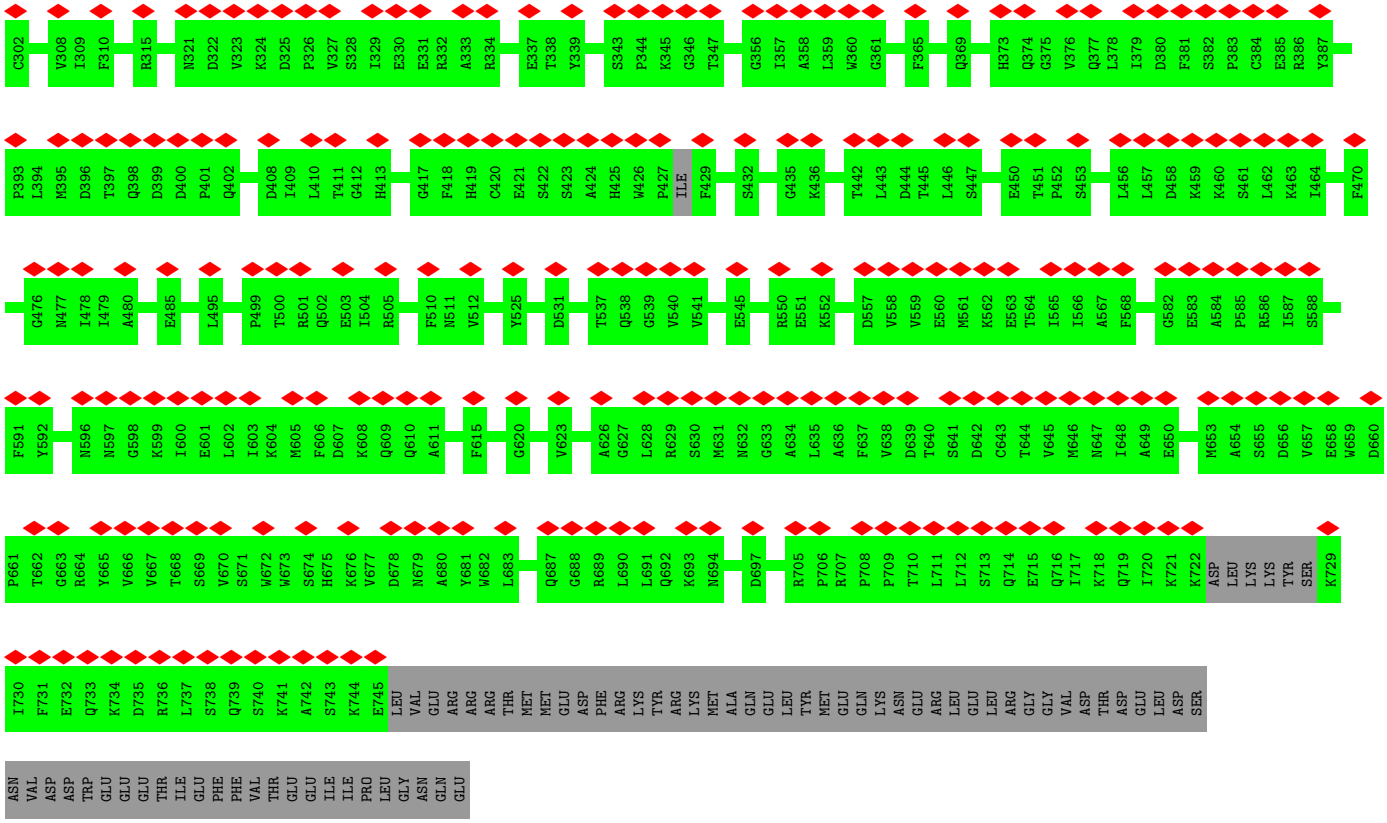
• Molecule 38: Eukaryotic translation initiation factor 3 subunit B

Chain B:

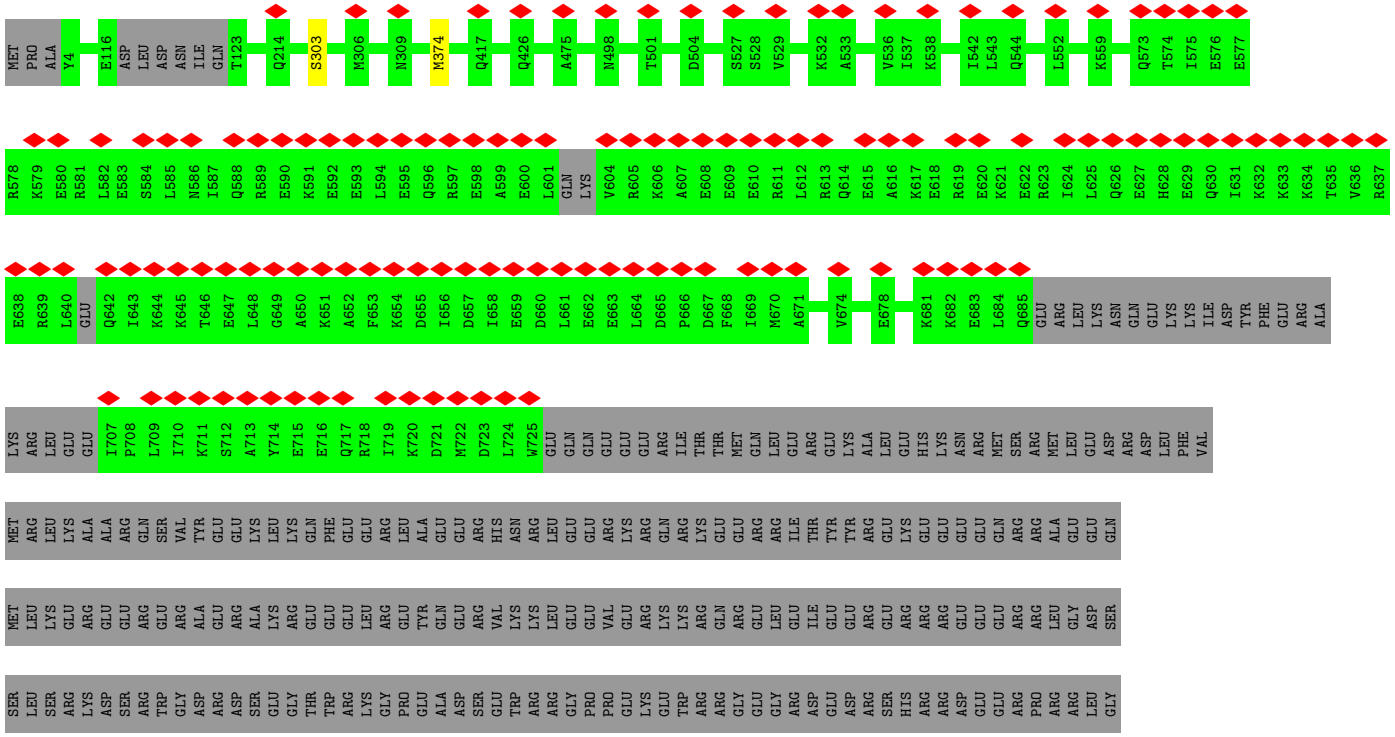


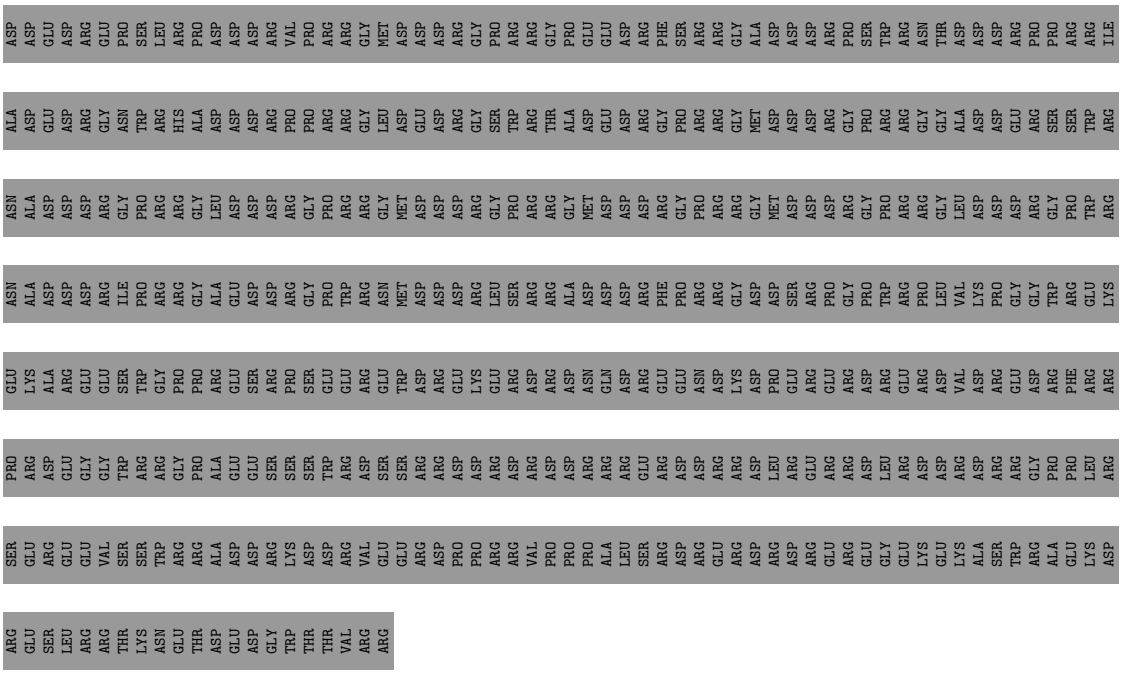






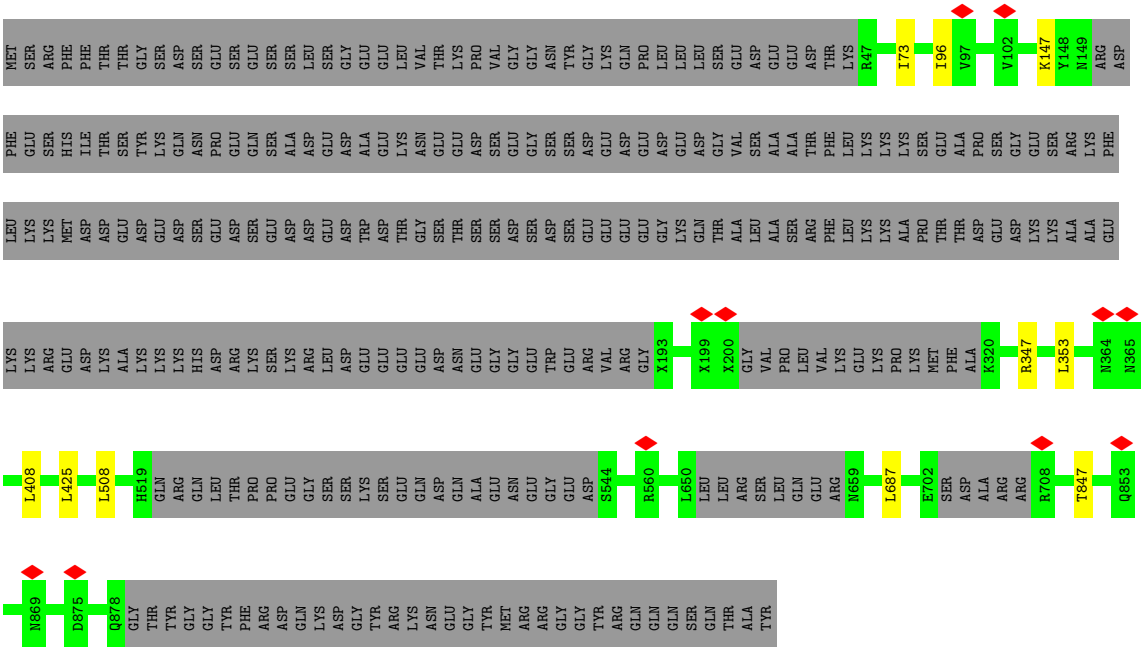
• Molecule 39: Eukaryotic translation initiation factor 3 subunit A





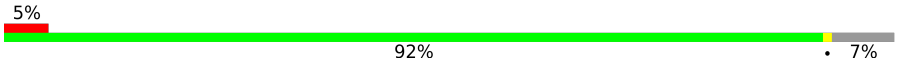
• Molecule 40: Eukaryotic translation initiation factor 3 subunit C,Eukaryotic translation initiation factor 3 subunit C,Eukaryotic translation initiation factor 3 subunit C

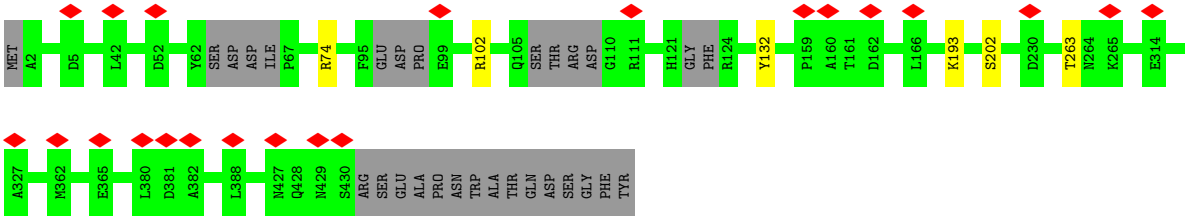
Chain C:



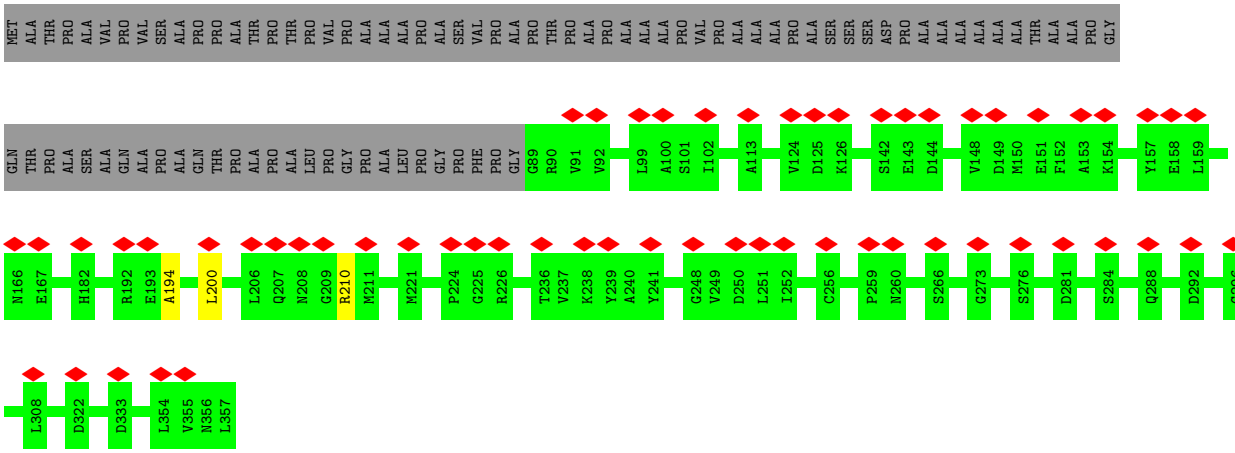
• Molecule 41: Eukaryotic translation initiation factor 3 subunit E

Chain E:

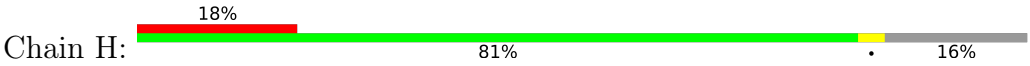


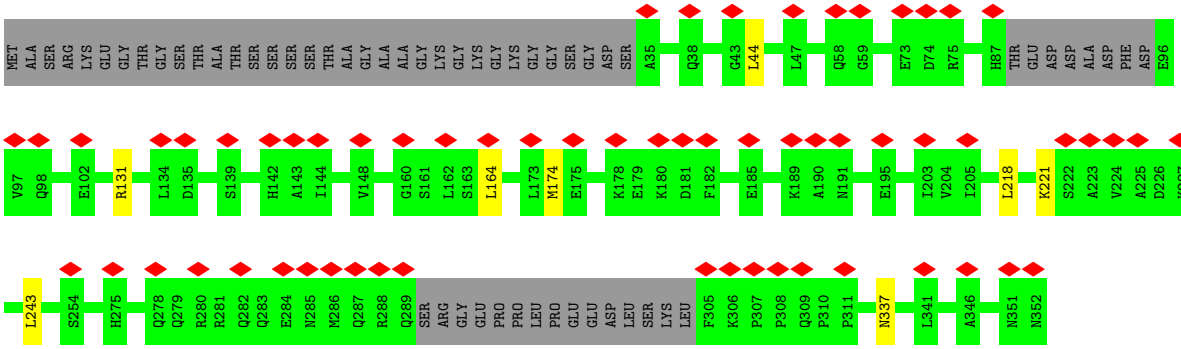


• Molecule 42: Eukaryotic translation initiation factor 3 subunit F

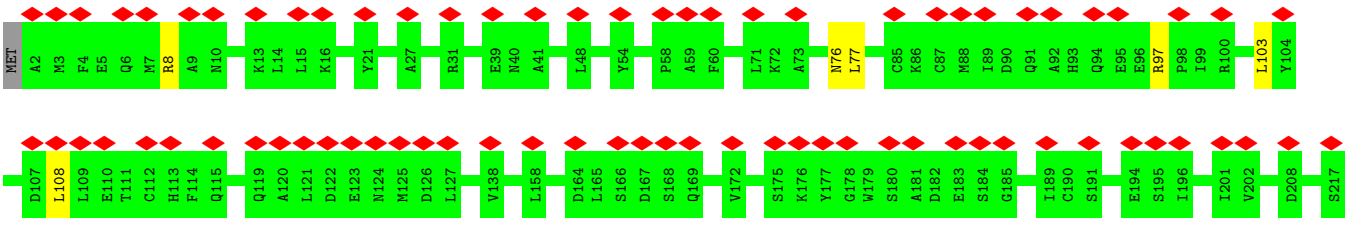


• Molecule 43: Eukaryotic translation initiation factor 3 subunit H



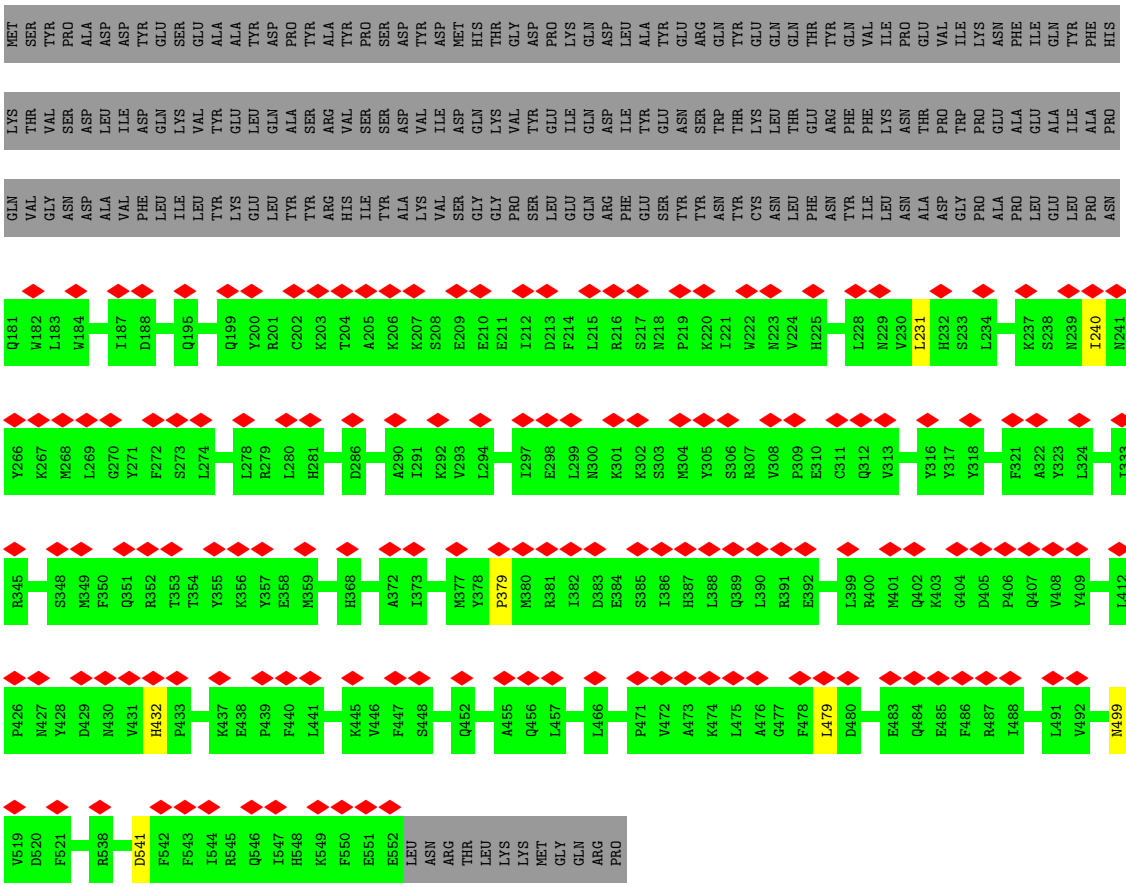


• Molecule 44: Eukaryotic translation initiation factor 3 subunit K



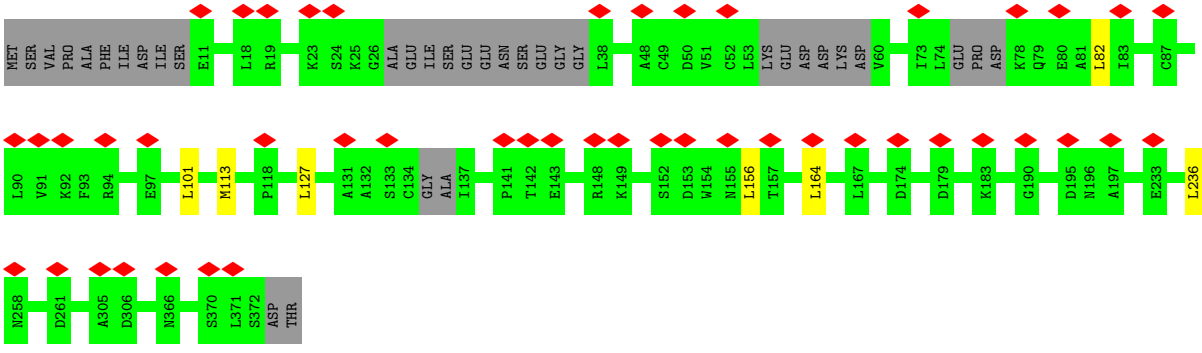
• Molecule 45: Eukaryotic translation initiation factor 3 subunit L

Chain L:



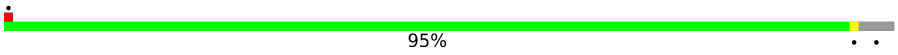
• Molecule 46: Eukaryotic translation initiation factor 3 subunit M

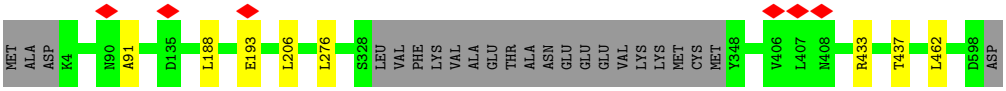
Chain M:



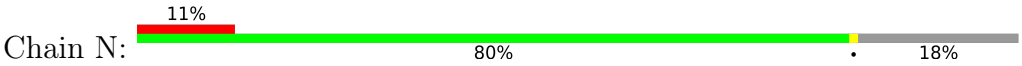
• Molecule 47: ATP-binding cassette sub-family E member 1

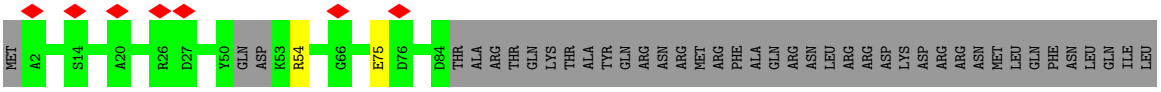
Chain J:

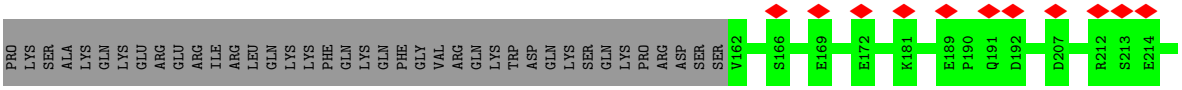


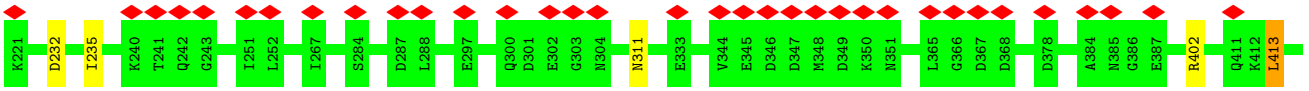


• Molecule 48: Eukaryotic translation initiation factor 3 subunit D

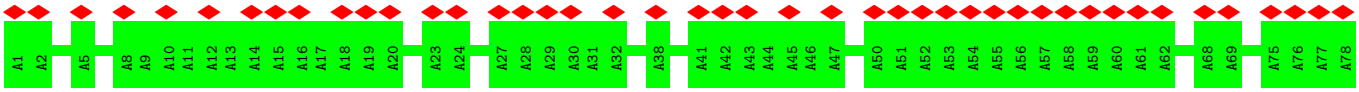




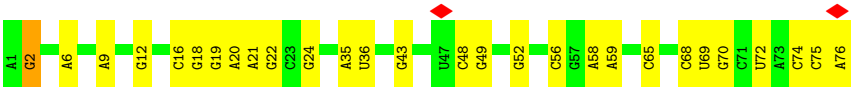




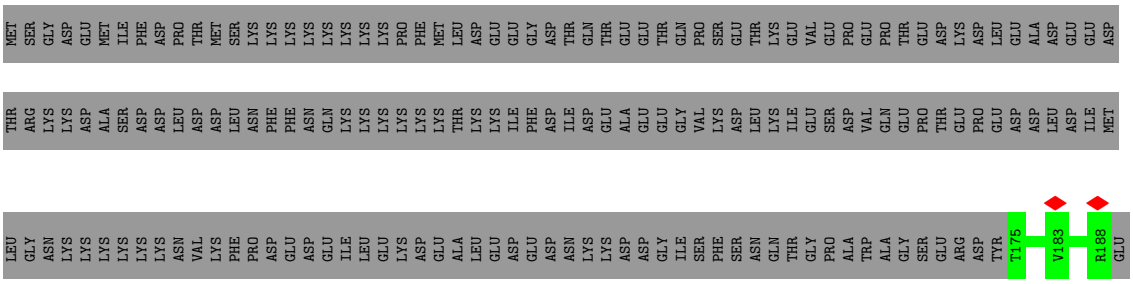
• Molecule 49: RNA recognition motif

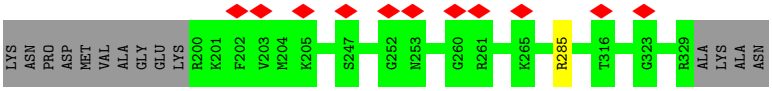


• Molecule 50: tRNA

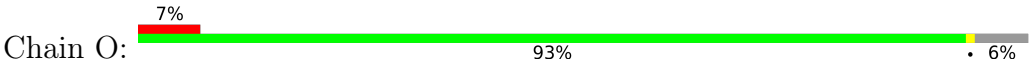


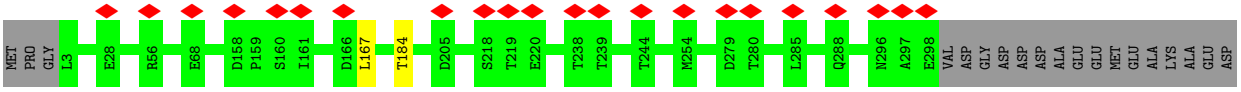
• Molecule 51: Eukaryotic translation initiation factor 2 subunit 2



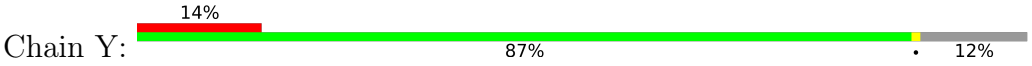


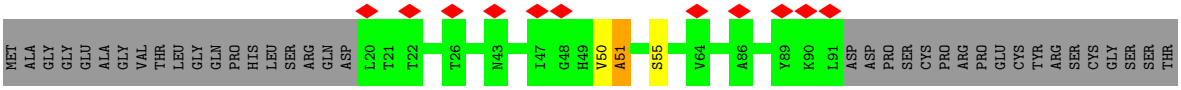
• Molecule 52: Eukaryotic translation initiation factor 2 subunit 1

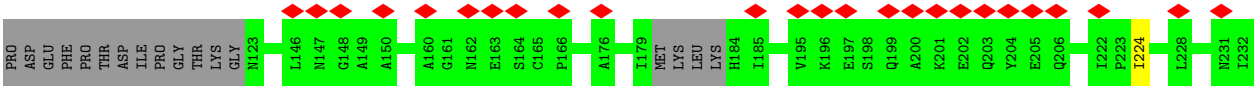


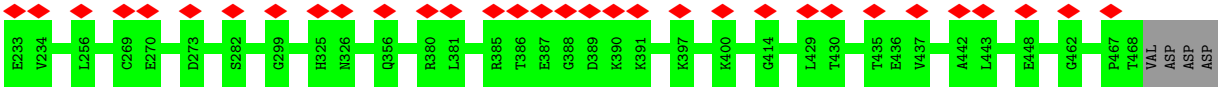


• Molecule 53: Eukaryotic translation initiation factor 2 subunit 3

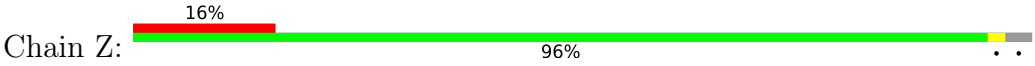


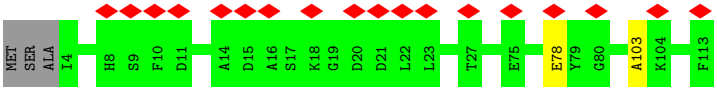






• Molecule 54: Eukaryotic translation initiation factor 1





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	8712	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	48	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.087	Depositor
Minimum map value	-0.030	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	423.6, 423.6, 423.6	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.059, 1.059, 1.059	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN, ADP, ATP, GTP, SF4

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	0.66	0/1742	0.70	1/2367 (0.0%)
2	p	0.62	0/1742	0.65	1/2330 (0.0%)
3	d	0.71	0/1710	0.73	1/2310 (0.0%)
4	Q	0.67	0/828	0.65	0/1109
5	q	0.63	0/2073	0.66	0/2791
6	W	0.59	0/231	0.70	0/294
7	r	0.52	0/1817	0.67	2/2421 (0.1%)
8	s	0.53	0/1418	0.68	1/1895 (0.1%)
9	t	0.63	0/1666	0.65	1/2223 (0.0%)
10	c	0.66	0/1524	0.71	2/2035 (0.1%)
11	n	0.72	0/1139	0.66	1/1524 (0.1%)
12	m	0.63	0/1226	0.65	0/1649
13	y	0.58	0/631	0.69	0/844
14	D	0.72	1/1051 (0.1%)	0.70	1/1406 (0.1%)
15	z	0.59	0/1016	0.66	0/1349
16	R	0.64	0/653	0.69	0/876
17	T	0.58	0/356	0.61	0/466
18	2	1.18	20/41057 (0.0%)	1.25	357/63987 (0.6%)
19	w	0.47	0/1024	0.69	1/1377 (0.1%)
20	b	0.41	0/1773	0.63	0/2387
21	e	0.40	0/1516	0.66	2/2037 (0.1%)
22	u	0.47	0/823	0.71	0/1111
23	v	0.34	0/870	0.67	1/1168 (0.1%)
24	o	0.39	0/999	0.74	1/1336 (0.1%)
25	g	0.46	0/1117	0.62	0/1494
26	k	0.40	0/1180	0.66	0/1581
27	x	0.38	0/1113	0.63	1/1493 (0.1%)
28	h	0.37	0/789	0.71	1/1059 (0.1%)
29	P	0.36	0/563	0.68	0/758
30	S	0.51	0/481	0.80	1/643 (0.2%)
31	l	0.45	0/461	0.68	1/612 (0.2%)
32	U	0.39	0/474	0.66	0/626

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	V	0.42	0/2369	0.72	1/3221 (0.0%)
34	i	0.55	0/951	0.69	1/1275 (0.1%)
35	j	0.66	0/1097	0.70	1/1464 (0.1%)
36	G	0.49	0/721	0.64	0/963
37	I	0.25	0/1495	0.49	0/2073
38	B	0.30	0/2981	0.57	0/4115
39	A	0.39	0/5469	0.64	1/7403 (0.0%)
40	C	0.43	0/5157	0.70	6/6946 (0.1%)
41	E	0.38	0/3503	0.69	0/4728
42	F	0.36	0/2126	0.70	1/2890 (0.0%)
43	H	0.36	0/2458	0.75	7/3313 (0.2%)
44	K	0.37	0/1785	0.74	3/2414 (0.1%)
45	L	0.35	0/3187	0.69	5/4299 (0.1%)
46	M	0.34	0/2756	0.75	6/3714 (0.2%)
47	J	0.45	0/4626	0.69	5/6247 (0.1%)
48	N	0.45	2/3699 (0.1%)	0.78	7/5001 (0.1%)
49	X	0.30	0/389	0.49	0/543
50	f	0.60	0/1794	1.20	11/2796 (0.4%)
51	4	0.39	0/1095	0.73	0/1477
52	O	0.35	0/2167	0.61	1/2943 (0.0%)
53	Y	0.28	0/2161	0.55	0/2985
54	Z	0.45	0/843	0.68	0/1134
All	All	0.78	23/127892 (0.0%)	0.93	433/181502 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
13	y	0	1
14	D	0	1
15	z	0	1
19	w	0	1
21	e	0	1
24	o	0	1
25	g	0	1
26	k	0	1
28	h	0	1
33	V	0	3
37	I	0	1
39	A	0	1

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
40	C	0	2
41	E	0	2
42	F	0	1
43	H	0	1
44	K	0	1
45	L	0	1
46	M	0	1
47	J	0	1
48	N	0	3
52	O	0	1
53	Y	0	3
54	Z	0	2
All	All	0	33

All (23) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	N	512	PRO	CG-CD	-12.09	1.10	1.50
48	N	512	PRO	CB-CG	-6.61	1.16	1.50
18	2	1100	A	N9-C4	-6.33	1.34	1.37
18	2	442	C	N1-C6	-6.32	1.33	1.37
18	2	671	A	N9-C4	-6.28	1.34	1.37
18	2	1355	C	N1-C6	-6.18	1.33	1.37
18	2	98	C	N1-C6	-5.63	1.33	1.37
18	2	1357	A	N9-C4	-5.56	1.34	1.37
18	2	22	A	N9-C4	-5.48	1.34	1.37
14	D	93	LEU	C-N	-5.41	1.21	1.34
18	2	639	C	N1-C6	-5.39	1.33	1.37
18	2	479	C	N1-C6	-5.37	1.33	1.37
18	2	13	C	N1-C6	-5.24	1.34	1.37
18	2	1843	G	N9-C8	-5.18	1.34	1.37
18	2	508	A	C5-C4	-5.15	1.35	1.38
18	2	594	A	N9-C4	-5.14	1.34	1.37
18	2	668	A	N9-C4	-5.13	1.34	1.37
18	2	1841	C	N1-C6	-5.13	1.34	1.37
18	2	1357	A	N3-C4	-5.12	1.31	1.34
18	2	1831	A	N7-C5	-5.11	1.36	1.39
18	2	429	C	N1-C6	-5.10	1.34	1.37
18	2	520	A	N3-C4	-5.09	1.31	1.34
18	2	520	A	N9-C4	-5.07	1.34	1.37

All (433) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
48	N	512	PRO	N-CD-CG	-17.68	76.69	103.20
48	N	512	PRO	CA-CB-CG	-12.58	80.10	104.00
18	2	501	C	C2-N1-C1'	12.30	132.33	118.80
18	2	501	C	N1-C2-O2	11.36	125.72	118.90
18	2	1453	C	C2-N1-C1'	11.29	131.21	118.80
48	N	512	PRO	CB-CG-CD	10.67	148.11	106.50
18	2	1389	C	N1-C2-O2	10.61	125.27	118.90
18	2	119	U	N3-C2-O2	-10.49	114.86	122.20
18	2	863	U	N3-C2-O2	-10.20	115.06	122.20
18	2	1389	C	C2-N1-C1'	9.96	129.75	118.80
18	2	1315	U	N1-C2-O2	9.59	129.51	122.80
18	2	953	C	C2-N1-C1'	9.49	129.24	118.80
18	2	422	U	N3-C2-O2	-9.46	115.58	122.20
18	2	733	C	N1-C2-O2	9.15	124.39	118.90
18	2	501	C	N3-C2-O2	-9.09	115.54	121.90
18	2	1103	C	C6-N1-C2	-9.08	116.67	120.30
18	2	974	C	C6-N1-C2	-9.04	116.69	120.30
18	2	1687	C	N1-C2-O2	8.98	124.29	118.90
18	2	666	U	C2-N1-C1'	8.88	128.36	117.70
18	2	501	C	C6-N1-C1'	-8.86	110.17	120.80
18	2	700	G	N3-C4-N9	8.77	131.26	126.00
18	2	853	C	C2-N1-C1'	8.66	128.32	118.80
18	2	1453	C	C6-N1-C1'	-8.52	110.57	120.80
18	2	1865	C	C2-N1-C1'	8.50	128.15	118.80
18	2	814	U	N3-C2-O2	-8.48	116.26	122.20
18	2	1139	C	N1-C2-O2	8.45	123.97	118.90
18	2	974	C	C2-N1-C1'	8.43	128.07	118.80
18	2	537	C	N1-C2-O2	8.42	123.95	118.90
18	2	1865	C	N3-C2-O2	-8.40	116.02	121.90
18	2	1591	C	C2-N1-C1'	8.28	127.91	118.80
18	2	853	C	N3-C2-O2	-8.21	116.15	121.90
18	2	1557	C	C6-N1-C2	-8.21	117.02	120.30
18	2	700	G	C4-N9-C1'	8.20	137.16	126.50
18	2	1591	C	N1-C2-O2	8.19	123.82	118.90
18	2	293	C	N1-C2-O2	8.18	123.81	118.90
18	2	974	C	N3-C2-O2	-8.16	116.19	121.90
43	H	231	LEU	CA-CB-CG	8.16	134.08	115.30
18	2	537	C	C6-N1-C2	-8.11	117.06	120.30
18	2	823	U	N3-C2-O2	-8.07	116.55	122.20
18	2	1865	C	N1-C2-O2	8.06	123.74	118.90
18	2	1139	C	N3-C2-O2	-8.05	116.26	121.90
18	2	1315	U	N3-C2-O2	-8.03	116.58	122.20
18	2	537	C	N3-C2-O2	-8.02	116.29	121.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	218	U	N3-C2-O2	-7.99	116.61	122.20
18	2	1591	C	C6-N1-C2	-7.99	117.11	120.30
18	2	1103	C	C5-C6-N1	7.87	124.93	121.00
18	2	659	G	C4-N9-C1'	7.78	136.61	126.50
18	2	666	U	N1-C2-O2	7.76	128.23	122.80
18	2	293	C	C2-N1-C1'	7.73	127.30	118.80
18	2	666	U	N3-C2-O2	-7.72	116.80	122.20
18	2	220	U	N3-C2-O2	-7.71	116.80	122.20
46	M	156	LEU	CA-CB-CG	7.67	132.94	115.30
18	2	700	G	C8-N9-C1'	-7.65	117.05	127.00
18	2	1073	U	C2-N1-C1'	7.63	126.85	117.70
8	s	30	LEU	CA-CB-CG	7.59	132.75	115.30
18	2	1703	C	C6-N1-C2	-7.59	117.27	120.30
18	2	1315	U	C2-N1-C1'	7.52	126.73	117.70
47	J	462	LEU	CA-CB-CG	7.52	132.60	115.30
18	2	1590	C	N1-C2-O2	7.52	123.41	118.90
44	K	77	LEU	CA-CB-CG	7.51	132.57	115.30
18	2	1389	C	C6-N1-C1'	-7.50	111.80	120.80
18	2	220	U	C2-N1-C1'	7.47	126.66	117.70
18	2	1073	U	N3-C2-O2	-7.47	116.97	122.20
46	M	113	MET	CA-CB-CG	7.45	125.97	113.30
18	2	814	U	C2-N1-C1'	7.42	126.61	117.70
18	2	1864	U	N3-C2-O2	-7.40	117.02	122.20
18	2	863	U	C2-N1-C1'	7.38	126.56	117.70
50	f	36	U	C2-N1-C1'	7.36	126.53	117.70
18	2	1453	C	N1-C2-O2	7.36	123.31	118.90
18	2	106	C	C5-C6-N1	7.32	124.66	121.00
18	2	1864	U	C2-N1-C1'	7.26	126.41	117.70
18	2	1139	C	C2-N1-C1'	7.25	126.78	118.80
47	J	276	LEU	CA-CB-CG	7.23	131.94	115.30
18	2	1424	G	C4-N9-C1'	7.23	135.90	126.50
18	2	1172	U	N1-C2-O2	7.22	127.86	122.80
18	2	1172	U	C2-N1-C1'	7.21	126.35	117.70
18	2	293	C	N3-C2-O2	-7.21	116.86	121.90
18	2	1389	C	N3-C2-O2	-7.21	116.86	121.90
18	2	362	C	N1-C2-O2	7.18	123.21	118.90
18	2	75	G	N3-C4-N9	7.17	130.30	126.00
18	2	1591	C	C5-C6-N1	7.14	124.57	121.00
18	2	853	C	N1-C2-O2	7.13	123.18	118.90
18	2	218	U	C2-N1-C1'	7.12	126.24	117.70
18	2	1424	G	C8-N9-C1'	-7.11	117.75	127.00
18	2	421	G	C8-N9-C4	-7.11	103.56	106.40

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	75	G	N3-C4-C5	-7.08	125.06	128.60
18	2	1557	C	C2-N1-C1'	7.06	126.56	118.80
18	2	700	G	C6-C5-N7	-7.05	126.17	130.40
18	2	796	G	N3-C4-N9	7.03	130.22	126.00
18	2	1687	C	C2-N1-C1'	7.03	126.53	118.80
18	2	912	C	C2-N1-C1'	7.03	126.53	118.80
18	2	501	C	C6-N1-C2	-7.02	117.49	120.30
18	2	1755	C	C6-N1-C2	-6.96	117.51	120.30
18	2	814	U	N1-C2-O2	6.95	127.67	122.80
18	2	1557	C	N3-C2-O2	-6.94	117.04	121.90
18	2	977	C	C2-N1-C1'	6.93	126.42	118.80
18	2	220	U	N1-C2-O2	6.92	127.64	122.80
30	S	36	ASP	CB-CG-OD1	6.92	124.53	118.30
18	2	1216	C	N1-C2-O2	6.90	123.04	118.90
18	2	1309	C	C6-N1-C2	-6.87	117.55	120.30
18	2	1485	U	C2-N1-C1'	6.84	125.90	117.70
18	2	1025	U	C5-C6-N1	6.83	126.12	122.70
18	2	1485	U	N1-C2-O2	6.83	127.58	122.80
18	2	953	C	C6-N1-C1'	-6.82	112.61	120.80
40	C	408	LEU	CB-CG-CD1	-6.82	99.40	111.00
2	p	62	LEU	CA-CB-CG	6.81	130.96	115.30
23	v	60	MET	CA-CB-CG	6.80	124.85	113.30
18	2	1277	C	C5-C6-N1	6.79	124.40	121.00
18	2	1471	C	C2-N1-C1'	6.79	126.27	118.80
18	2	345	U	C5-C6-N1	6.76	126.08	122.70
18	2	1395	C	C2-N1-C1'	6.75	126.23	118.80
18	2	735	C	N3-C2-O2	-6.74	117.18	121.90
50	f	36	U	N1-C2-O2	6.73	127.51	122.80
18	2	1453	C	C5-C6-N1	6.73	124.36	121.00
18	2	1045	U	N1-C2-O2	6.72	127.51	122.80
18	2	700	G	N3-C4-C5	-6.71	125.24	128.60
18	2	1271	C	N1-C2-O2	6.71	122.93	118.90
35	j	113	GLY	N-CA-C	-6.70	96.35	113.10
48	N	235	ILE	CG1-CB-CG2	-6.69	96.68	111.40
18	2	974	C	N1-C2-O2	6.69	122.91	118.90
18	2	1520	G	C4-N9-C1'	6.68	135.19	126.50
18	2	1340	U	C5-C6-N1	6.68	126.04	122.70
18	2	119	U	C6-N1-C2	-6.67	117.00	121.00
18	2	1389	C	C5-C6-N1	6.65	124.33	121.00
18	2	532	C	C2-N1-C1'	6.64	126.10	118.80
18	2	1465	A	O4'-C1'-N9	6.60	113.48	108.20
18	2	1557	C	N1-C2-O2	6.59	122.86	118.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	1511	U	N3-C2-O2	-6.56	117.61	122.20
18	2	1618	C	C6-N1-C2	-6.56	117.68	120.30
18	2	218	U	N1-C2-O2	6.55	127.38	122.80
18	2	371	A	O5'-P-OP2	-6.54	99.82	105.70
18	2	570	C	C6-N1-C2	-6.54	117.69	120.30
18	2	660	C	N1-C2-O2	6.54	122.82	118.90
18	2	1687	C	N3-C2-O2	-6.53	117.33	121.90
18	2	1073	U	N1-C2-O2	6.52	127.36	122.80
18	2	100	U	N1-C2-O2	6.51	127.36	122.80
18	2	953	C	N1-C2-O2	6.50	122.80	118.90
18	2	639	C	C5-C6-N1	6.49	124.24	121.00
48	N	413	LEU	CA-CB-CG	6.49	130.22	115.30
18	2	1056	U	C5-C6-N1	6.48	125.94	122.70
18	2	1471	C	C6-N1-C2	-6.48	117.71	120.30
18	2	1045	U	N3-C2-O2	-6.48	117.67	122.20
18	2	1761	U	N1-C2-O2	6.46	127.32	122.80
40	C	73	ILE	CG1-CB-CG2	-6.46	97.19	111.40
50	f	36	U	N3-C2-O2	-6.44	117.69	122.20
18	2	472	C	C2-N1-C1'	6.42	125.87	118.80
18	2	1485	U	N3-C2-O2	-6.42	117.71	122.20
48	N	512	PRO	CA-N-CD	-6.41	102.52	111.50
18	2	725	C	C5-C6-N1	6.40	124.20	121.00
18	2	119	U	C2-N1-C1'	6.38	125.36	117.70
45	L	240	ILE	CG1-CB-CG2	-6.38	97.37	111.40
18	2	1091	C	C6-N1-C2	-6.37	117.75	120.30
18	2	1100	A	C2-N3-C4	-6.36	107.42	110.60
18	2	1123	C	C5-C6-N1	6.36	124.18	121.00
18	2	1118	C	N1-C2-O2	6.35	122.71	118.90
18	2	293	C	C6-N1-C2	-6.35	117.76	120.30
18	2	1648	G	N3-C4-N9	-6.33	122.20	126.00
18	2	1271	C	C2-N1-C1'	6.33	125.76	118.80
18	2	659	G	C8-N9-C1'	-6.31	118.80	127.00
18	2	1395	C	C6-N1-C2	-6.30	117.78	120.30
18	2	1591	C	N3-C2-O2	-6.27	117.51	121.90
18	2	1752	C	C6-N1-C1'	6.26	128.31	120.80
24	o	57	LEU	CA-CB-CG	6.26	129.69	115.30
45	L	231	LEU	CA-CB-CG	6.25	129.66	115.30
18	2	851	C	N1-C2-O2	6.24	122.65	118.90
18	2	899	U	C5-C6-N1	6.23	125.82	122.70
18	2	1216	C	C2-N1-C1'	6.23	125.66	118.80
18	2	427	U	N3-C2-O2	-6.23	117.84	122.20
18	2	1249	C	O5'-P-OP1	-6.23	100.10	105.70

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	1852	C	C6-N1-C2	-6.23	117.81	120.30
18	2	17	C	C5-C4-N4	-6.22	115.84	120.20
46	M	82	LEU	CA-CB-CG	6.22	129.62	115.30
18	2	1504	U	N1-C2-O2	6.22	127.15	122.80
18	2	823	U	C2-N1-C1'	6.19	125.13	117.70
18	2	796	G	C6-C5-N7	-6.19	126.69	130.40
18	2	1154	U	C2-N1-C1'	6.18	125.12	117.70
18	2	823	U	N1-C2-O2	6.18	127.12	122.80
18	2	119	U	N1-C2-O2	6.17	127.12	122.80
18	2	1261	C	C6-N1-C2	-6.15	117.84	120.30
18	2	75	G	C4-N9-C1'	6.14	134.49	126.50
10	c	64	ASP	CB-CG-OD1	6.13	123.82	118.30
18	2	1306	U	C4-C5-C6	6.13	123.38	119.70
18	2	1424	G	N3-C4-N9	6.10	129.66	126.00
18	2	1821	U	N3-C2-O2	-6.10	117.93	122.20
18	2	422	U	C2-N1-C1'	6.09	125.01	117.70
18	2	912	C	N1-C2-O2	6.09	122.55	118.90
18	2	17	C	C2-N3-C4	-6.09	116.86	119.90
18	2	1761	U	C2-N1-C1'	6.08	125.00	117.70
18	2	1752	C	C6-N1-C2	-6.08	117.87	120.30
18	2	1865	C	C6-N1-C1'	-6.08	113.50	120.80
18	2	1317	C	C6-N1-C2	-6.08	117.87	120.30
18	2	1078	C	C2-N1-C1'	6.08	125.48	118.80
18	2	1590	C	N3-C2-O2	-6.07	117.65	121.90
45	L	379	PRO	C-N-CA	6.06	136.86	121.70
18	2	222	U	C5-C6-N1	6.06	125.73	122.70
40	C	508	LEU	CA-CB-CG	6.05	129.21	115.30
18	2	796	G	C8-N9-C1'	-6.04	119.14	127.00
18	2	1852	C	C2-N1-C1'	6.04	125.45	118.80
18	2	723	C	N1-C2-O2	6.04	122.52	118.90
43	H	174	MET	CG-SD-CE	6.03	109.86	100.20
18	2	362	C	N3-C2-O2	-6.03	117.68	121.90
18	2	1317	C	C5-C6-N1	6.02	124.01	121.00
46	M	127	LEU	CA-CB-CG	6.01	129.12	115.30
18	2	1504	U	C2-N1-C1'	5.99	124.89	117.70
48	N	232	ASP	CB-CG-OD1	5.99	123.69	118.30
18	2	796	G	C4-N9-C1'	5.96	134.25	126.50
18	2	1784	G	C8-N9-C4	-5.96	104.02	106.40
18	2	35	C	C6-N1-C2	-5.96	117.92	120.30
18	2	977	C	C6-N1-C1'	-5.96	113.65	120.80
18	2	1407	U	C2-N1-C1'	5.95	124.84	117.70
18	2	1520	G	C8-N9-C1'	-5.95	119.26	127.00

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	l	36	LEU	CA-CB-CG	5.95	128.98	115.30
18	2	666	U	C6-N1-C1'	-5.94	112.89	121.20
18	2	853	C	C6-N1-C1'	-5.93	113.68	120.80
18	2	1559	C	C5-C6-N1	5.92	123.96	121.00
18	2	210	U	C5-C6-N1	5.92	125.66	122.70
43	H	243	LEU	CA-CB-CG	5.92	128.91	115.30
18	2	100	U	N3-C2-O2	-5.90	118.07	122.20
18	2	1856	C	C5-C6-N1	5.89	123.95	121.00
50	f	68	C	C6-N1-C2	-5.89	117.94	120.30
18	2	75	G	C2-N3-C4	5.89	114.84	111.90
18	2	632	C	C2-N1-C1'	5.89	125.28	118.80
9	t	105	ASP	CB-CG-OD1	5.88	123.59	118.30
18	2	124	U	C5-C6-N1	5.86	125.63	122.70
18	2	444	G	N3-C4-N9	5.86	129.52	126.00
18	2	1590	C	C6-N1-C2	-5.86	117.95	120.30
18	2	953	C	N3-C2-O2	-5.86	117.80	121.90
18	2	735	C	N1-C2-O2	5.86	122.42	118.90
18	2	1504	U	N3-C2-O2	-5.86	118.10	122.20
21	e	196	LEU	CA-CB-CG	5.85	128.76	115.30
18	2	552	G	C6-C5-N7	-5.85	126.89	130.40
18	2	700	G	C4-C5-C6	5.84	122.30	118.80
18	2	100	U	C2-N1-C1'	5.83	124.70	117.70
18	2	1172	U	N3-C2-O2	-5.83	118.12	122.20
18	2	1303	C	N1-C2-O2	5.83	122.40	118.90
18	2	1395	C	C5-C6-N1	5.82	123.91	121.00
28	h	91	LEU	CA-CB-CG	5.79	128.61	115.30
18	2	496	C	C6-N1-C2	-5.78	117.99	120.30
18	2	552	G	C4-N9-C1'	5.77	134.00	126.50
18	2	639	C	C2-N1-C1'	5.77	125.14	118.80
18	2	421	G	N7-C8-N9	5.76	115.98	113.10
18	2	1511	U	C2-N1-C1'	5.76	124.61	117.70
18	2	75	G	C8-N9-C1'	-5.76	119.51	127.00
18	2	853	C	C6-N1-C2	-5.75	118.00	120.30
18	2	632	C	C5-C6-N1	5.72	123.86	121.00
18	2	106	C	C6-N1-C2	-5.72	118.01	120.30
18	2	1292	C	N3-C2-O2	-5.72	117.90	121.90
18	2	422	U	N1-C2-N3	5.72	118.33	114.90
11	n	119	ASP	CB-CG-OD1	5.71	123.44	118.30
50	f	43	G	N3-C2-N2	-5.69	115.92	119.90
18	2	1784	G	C4-N9-C1'	5.68	133.88	126.50
18	2	1464	C	C5-C6-N1	5.67	123.84	121.00
18	2	427	U	C2-N1-C1'	5.67	124.50	117.70

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	1180	C	N1-C2-O2	5.67	122.30	118.90
18	2	1303	C	C2-N1-C1'	5.65	125.02	118.80
1	a	206	ASP	CB-CG-OD1	5.64	123.37	118.30
18	2	1380	C	C5-C6-N1	5.63	123.82	121.00
18	2	1520	G	N3-C4-N9	5.62	129.38	126.00
18	2	974	C	C5-C6-N1	5.62	123.81	121.00
52	O	167	LEU	CA-CB-CG	5.62	128.22	115.30
18	2	1502	C	N1-C2-O2	5.61	122.27	118.90
18	2	1649	U	C2-N1-C1'	5.61	124.43	117.70
40	C	353	LEU	CA-CB-CG	5.60	128.19	115.30
43	H	44	LEU	CA-CB-CG	5.60	128.19	115.30
18	2	863	U	N1-C2-O2	5.60	126.72	122.80
27	x	110	LEU	CA-CB-CG	5.58	128.13	115.30
18	2	116	U	C5-C6-N1	5.56	125.48	122.70
18	2	1149	A	C2-N3-C4	5.55	113.38	110.60
18	2	1648	G	C8-N9-C1'	5.55	134.22	127.00
18	2	723	C	C2-N1-C1'	5.55	124.91	118.80
18	2	444	G	C6-C5-N7	-5.55	127.07	130.40
18	2	1073	U	C6-N1-C1'	-5.54	113.44	121.20
18	2	1118	C	N3-C2-O2	-5.54	118.02	121.90
18	2	1761	U	C5-C6-N1	5.54	125.47	122.70
18	2	1316	C	C2-N1-C1'	5.54	124.89	118.80
18	2	863	U	N1-C2-N3	5.53	118.22	114.90
18	2	1576	G	C6-C5-N7	-5.53	127.08	130.40
18	2	1474	A	P-O3'-C3'	5.53	126.33	119.70
18	2	1648	G	C4-N9-C1'	-5.53	119.31	126.50
21	e	76	MET	CA-CB-CG	5.50	122.66	113.30
18	2	100	U	C5-C6-N1	5.50	125.45	122.70
18	2	552	G	C8-N9-C1'	-5.49	119.86	127.00
18	2	685	A	O4'-C1'-N9	5.49	112.59	108.20
46	M	101	LEU	CA-CB-CG	5.49	127.93	115.30
18	2	570	C	C2-N1-C1'	5.49	124.83	118.80
18	2	1775	U	C2-N1-C1'	5.49	124.28	117.70
18	2	220	U	C6-N1-C1'	-5.48	113.52	121.20
18	2	1856	C	C6-N1-C2	-5.48	118.11	120.30
18	2	1440	C	C5-C6-N1	5.47	123.74	121.00
18	2	1306	U	N3-C2-O2	-5.47	118.37	122.20
18	2	1292	C	P-O3'-C3'	5.47	126.26	119.70
18	2	1172	U	C6-N1-C1'	-5.46	113.55	121.20
18	2	912	C	C5-C6-N1	5.46	123.73	121.00
18	2	1139	C	C6-N1-C1'	-5.46	114.25	120.80
18	2	1635	C	C6-N1-C2	-5.46	118.11	120.30

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	1271	C	C6-N1-C2	-5.46	118.12	120.30
18	2	168	C	N1-C2-O2	5.45	122.17	118.90
18	2	1760	G	N3-C4-N9	5.45	129.27	126.00
34	i	131	ASP	CB-CG-OD1	5.45	123.20	118.30
18	2	344	U	O4'-C1'-N1	5.43	112.55	108.20
18	2	1576	G	N3-C4-N9	5.43	129.26	126.00
18	2	882	U	C5-C6-N1	5.43	125.42	122.70
18	2	1304	U	C2-N1-C1'	5.43	124.21	117.70
18	2	119	U	C5-C4-O4	5.42	129.16	125.90
18	2	362	C	C2-N1-C1'	5.42	124.76	118.80
18	2	501	C	C5-C6-N1	5.42	123.71	121.00
18	2	1501	C	C5-C6-N1	5.41	123.71	121.00
3	d	117	ARG	NE-CZ-NH1	5.41	123.00	120.30
18	2	472	C	N1-C2-O2	5.40	122.14	118.90
18	2	1399	C	N1-C2-O2	5.40	122.14	118.90
18	2	470	G	C4-N9-C1'	5.40	133.52	126.50
46	M	164	LEU	CA-CB-CG	5.40	127.73	115.30
18	2	953	C	C6-N1-C2	-5.40	118.14	120.30
19	w	47	ARG	NE-CZ-NH1	5.39	123.00	120.30
18	2	168	C	N3-C2-O2	-5.39	118.13	121.90
44	K	103	LEU	CA-CB-CG	-5.38	102.92	115.30
18	2	178	C	N1-C2-O2	5.38	122.13	118.90
18	2	883	U	N3-C2-O2	-5.38	118.44	122.20
45	L	541	ASP	CB-CG-OD1	5.36	123.12	118.30
18	2	860	G	N3-C4-C5	-5.36	125.92	128.60
18	2	1784	G	O4'-C1'-N9	5.35	112.48	108.20
43	H	164	LEU	CA-CB-CG	5.35	127.61	115.30
18	2	216	C	C6-N1-C2	-5.34	118.16	120.30
18	2	863	U	C6-N1-C2	-5.33	117.80	121.00
39	A	374	MET	CB-CG-SD	-5.33	96.42	112.40
18	2	1316	C	N1-C2-O2	5.33	122.09	118.90
18	2	470	G	C8-N9-C1'	-5.32	120.08	127.00
18	2	422	U	C6-N1-C2	-5.31	117.81	121.00
18	2	851	C	N3-C2-O2	-5.31	118.18	121.90
18	2	1742	C	C2-N1-C1'	5.31	124.64	118.80
18	2	218	U	C6-N1-C2	-5.31	117.81	121.00
18	2	1761	U	N3-C2-O2	-5.31	118.49	122.20
18	2	441	C	N1-C2-O2	5.30	122.08	118.90
47	J	188	LEU	CA-CB-CG	5.30	127.50	115.30
18	2	660	C	C2-N1-C1'	5.29	124.62	118.80
18	2	1472	C	C5-C6-N1	5.29	123.64	121.00
18	2	441	C	N3-C2-O2	-5.29	118.20	121.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	1315	U	C5-C6-N1	5.29	125.34	122.70
40	C	687	LEU	CA-CB-CG	-5.29	103.13	115.30
45	L	479	LEU	CA-CB-CG	5.29	127.47	115.30
18	2	1714	U	C5-C6-N1	5.28	125.34	122.70
43	H	233	LEU	CA-CB-CG	5.28	127.44	115.30
18	2	444	G	C4-C5-N7	5.27	112.91	110.80
47	J	206	LEU	C-N-CA	5.27	134.87	121.70
18	2	32	U	N3-C2-O2	-5.26	118.52	122.20
18	2	496	C	C5-C6-N1	5.26	123.63	121.00
50	f	65	C	C5-C6-N1	5.26	123.63	121.00
18	2	1120	U	C2-N1-C1'	-5.25	111.39	117.70
18	2	552	G	N3-C4-N9	5.24	129.15	126.00
18	2	666	U	C5-C6-N1	5.24	125.32	122.70
18	2	1576	G	C4-C5-N7	5.23	112.89	110.80
18	2	1271	C	N3-C2-O2	-5.23	118.24	121.90
18	2	444	G	C5-C6-O6	-5.22	125.47	128.60
18	2	1453	C	C6-N1-C2	-5.22	118.21	120.30
18	2	659	G	N3-C4-C5	-5.21	125.99	128.60
18	2	1304	U	C5-C6-N1	5.21	125.31	122.70
18	2	15	U	C5-C4-O4	-5.20	122.78	125.90
18	2	1309	C	C2-N1-C1'	5.20	124.52	118.80
18	2	119	U	N1-C2-N3	5.19	118.02	114.90
18	2	144	U	N3-C2-O2	-5.18	118.57	122.20
18	2	532	C	C5-C6-N1	5.18	123.59	121.00
18	2	917	U	C2-N1-C1'	5.18	123.92	117.70
18	2	1758	G	N3-C4-N9	5.18	129.11	126.00
18	2	570	C	C5-C6-N1	5.18	123.59	121.00
18	2	1520	G	N3-C4-C5	-5.18	126.01	128.60
18	2	1576	G	N9-C4-C5	-5.17	103.33	105.40
18	2	676	C	C5-C6-N1	5.17	123.59	121.00
18	2	1165	G	N3-C4-C5	-5.17	126.02	128.60
18	2	539	C	C5-C6-N1	5.17	123.58	121.00
18	2	733	C	N3-C2-O2	-5.17	118.28	121.90
18	2	977	C	N1-C2-O2	5.16	122.00	118.90
7	r	22	ARG	NE-CZ-NH1	5.16	122.88	120.30
18	2	1058	A	P-O3'-C3'	5.16	125.89	119.70
18	2	151	C	C5-C6-N1	5.15	123.58	121.00
50	f	2	G	C4-N9-C1'	5.15	133.20	126.50
33	V	5	MET	CB-CG-SD	5.15	127.86	112.40
18	2	1427	C	C6-N1-C2	-5.15	118.24	120.30
18	2	862	A	N7-C8-N9	5.14	116.37	113.80
18	2	692	G	N1-C6-O6	-5.14	116.81	119.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	868	G	C4-N9-C1'	-5.14	119.82	126.50
10	c	87	LEU	CA-CB-CG	5.13	127.11	115.30
18	2	1502	C	C2-N1-C1'	5.13	124.44	118.80
18	2	494	C	C5-C6-N1	5.13	123.56	121.00
18	2	1154	U	N1-C2-O2	5.13	126.39	122.80
18	2	1784	G	N7-C8-N9	5.13	115.66	113.10
50	f	2	G	N3-C4-N9	5.12	129.07	126.00
18	2	494	C	N1-C2-O2	5.12	121.97	118.90
18	2	1400	U	C2-N1-C1'	5.12	123.85	117.70
18	2	148	U	N3-C2-O2	-5.12	118.62	122.20
18	2	532	C	N1-C2-O2	5.12	121.97	118.90
18	2	1022	U	C2-N1-C1'	5.12	123.84	117.70
18	2	1281	G	C4-C5-N7	5.12	112.85	110.80
18	2	1349	G	N3-C4-N9	5.12	129.07	126.00
18	2	1553	C	N1-C2-O2	5.11	121.97	118.90
18	2	738	C	O4'-C1'-N1	5.11	112.29	108.20
18	2	708	C	C5-C6-N1	5.10	123.55	121.00
18	2	905	C	N1-C2-O2	5.10	121.96	118.90
40	C	425	LEU	CA-CB-CG	5.10	127.03	115.30
18	2	1687	C	C6-N1-C1'	-5.09	114.69	120.80
18	2	1865	C	C6-N1-C2	-5.09	118.26	120.30
44	K	108	LEU	CA-CB-CG	5.09	127.01	115.30
18	2	210	U	C2-N1-C1'	5.09	123.80	117.70
18	2	293	C	C5-C6-N1	5.08	123.54	121.00
14	D	104	LEU	CA-CB-CG	5.08	126.99	115.30
47	J	437	THR	C-N-CA	-5.08	108.99	121.70
43	H	218	LEU	CA-CB-CG	5.08	126.98	115.30
7	r	130	PRO	CA-N-CD	-5.08	104.39	111.50
18	2	1756	C	C6-N1-C2	-5.08	118.27	120.30
18	2	1251	A	C2-N3-C4	-5.07	108.06	110.60
50	f	43	G	N9-C4-C5	5.07	107.43	105.40
50	f	65	C	C6-N1-C2	-5.07	118.27	120.30
18	2	1557	C	C5-C6-N1	5.06	123.53	121.00
18	2	639	C	C6-N1-C2	-5.06	118.28	120.30
18	2	1237	C	C6-N1-C2	-5.06	118.28	120.30
18	2	18	C	C5-C6-N1	5.06	123.53	121.00
18	2	1649	U	N1-C2-O2	5.06	126.34	122.80
18	2	1292	C	N1-C2-O2	5.06	121.93	118.90
18	2	7	G	C6-N1-C2	-5.05	122.07	125.10
18	2	904	A	N7-C8-N9	5.05	116.32	113.80
18	2	1399	C	N3-C2-O2	-5.05	118.37	121.90
18	2	1103	C	C6-N1-C1'	5.04	126.85	120.80

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	2	572	U	C2-N1-C1'	5.03	123.73	117.70
18	2	1758	G	C2-N3-C4	5.02	114.41	111.90
18	2	868	G	N3-C4-N9	-5.02	122.99	126.00
18	2	1116	C	N1-C2-O2	5.02	121.91	118.90
18	2	537	C	C5-C6-N1	5.02	123.51	121.00
18	2	1677	U	C6-N1-C2	-5.01	117.99	121.00
18	2	1713	C	C6-N1-C2	-5.01	118.30	120.30
18	2	1784	G	N3-C4-C5	-5.01	126.09	128.60
18	2	17	C	N3-C4-C5	5.01	123.90	121.90
50	f	2	G	N3-C4-C5	-5.01	126.10	128.60
18	2	1304	U	N1-C2-O2	5.00	126.30	122.80
42	F	200	LEU	CA-CB-CG	5.00	126.80	115.30

There are no chirality outliers.

All (33) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
39	A	303	SER	Peptide
40	C	847	THR	Peptide
40	C	96	ILE	Peptide
14	D	54	ASP	Peptide
41	E	202	SER	Peptide
41	E	263	THR	Peptide
42	F	194	ALA	Peptide
43	H	221	LYS	Peptide
37	I	147	SER	Peptide
47	J	91	ALA	Peptide
44	K	97	ARG	Peptide
45	L	432	HIS	Peptide
46	M	236	LEU	Peptide
48	N	402	ARG	Peptide
48	N	413	LEU	Peptide
48	N	75	GLU	Peptide
52	O	184	THR	Peptide
33	V	134	THR	Peptide
33	V	174	VAL	Peptide
33	V	74	ASP	Peptide
53	Y	50	VAL	Peptide
53	Y	51	ALA	Peptide
53	Y	55	SER	Peptide
54	Z	103	ALA	Peptide
54	Z	78	GLU	Peptide

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Group
21	e	77	MET	Peptide
25	g	42	ILE	Peptide
28	h	93	SER	Peptide
26	k	99	LEU	Peptide
24	o	47	ARG	Peptide
19	w	115	SER	Peptide
13	y	50	PHE	Peptide
15	z	29	HIS	Peptide

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	
1	a	214/295 (72%)	205 (96%)	9 (4%)	0	100	100
2	p	209/264 (79%)	194 (93%)	15 (7%)	0	100	100
3	d	214/293 (73%)	196 (92%)	18 (8%)	0	100	100
4	Q	99/115 (86%)	95 (96%)	4 (4%)	0	100	100
5	q	253/263 (96%)	231 (91%)	22 (9%)	0	100	100
6	W	22/25 (88%)	22 (100%)	0	0	100	100
7	r	220/249 (88%)	203 (92%)	17 (8%)	0	100	100
8	s	165/194 (85%)	151 (92%)	14 (8%)	0	100	100
9	t	195/208 (94%)	177 (91%)	18 (9%)	0	100	100
10	c	178/194 (92%)	165 (93%)	13 (7%)	0	100	100
11	n	131/158 (83%)	119 (91%)	12 (9%)	0	100	100
12	m	147/151 (97%)	140 (95%)	7 (5%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	y	80/83 (96%)	77 (96%)	3 (4%)	0	100	100
14	D	127/130 (98%)	121 (95%)	6 (5%)	0	100	100
15	z	120/131 (92%)	111 (92%)	9 (8%)	0	100	100
16	R	80/84 (95%)	76 (95%)	4 (5%)	0	100	100
17	T	40/59 (68%)	37 (92%)	3 (8%)	0	100	100
19	w	124/135 (92%)	109 (88%)	15 (12%)	0	100	100
20	b	222/243 (91%)	203 (91%)	19 (9%)	0	100	100
21	e	187/204 (92%)	172 (92%)	15 (8%)	0	100	100
22	u	93/165 (56%)	84 (90%)	9 (10%)	0	100	100
23	v	107/132 (81%)	99 (92%)	8 (8%)	0	100	100
24	o	117/145 (81%)	113 (97%)	4 (3%)	0	100	100
25	g	136/146 (93%)	129 (95%)	7 (5%)	0	100	100
26	k	138/152 (91%)	129 (94%)	9 (6%)	0	100	100
27	x	139/145 (96%)	132 (95%)	7 (5%)	0	100	100
28	h	96/119 (81%)	88 (92%)	8 (8%)	0	100	100
29	P	68/125 (54%)	61 (90%)	7 (10%)	0	100	100
30	S	59/69 (86%)	55 (93%)	4 (7%)	0	100	100
31	l	52/56 (93%)	48 (92%)	4 (8%)	0	100	100
32	U	53/156 (34%)	46 (87%)	7 (13%)	0	100	100
33	V	290/317 (92%)	248 (86%)	40 (14%)	2 (1%)	22	61
34	i	123/151 (82%)	108 (88%)	15 (12%)	0	100	100
35	j	137/143 (96%)	128 (93%)	8 (6%)	1 (1%)	22	61
36	G	86/112 (77%)	81 (94%)	5 (6%)	0	100	100
37	I	301/325 (93%)	292 (97%)	9 (3%)	0	100	100
38	B	528/814 (65%)	468 (89%)	60 (11%)	0	100	100
39	A	682/1382 (49%)	646 (95%)	36 (5%)	0	100	100
40	C	615/921 (67%)	571 (93%)	44 (7%)	0	100	100
41	E	406/445 (91%)	386 (95%)	20 (5%)	0	100	100
42	F	267/357 (75%)	237 (89%)	30 (11%)	0	100	100
43	H	289/352 (82%)	262 (91%)	27 (9%)	0	100	100
44	K	215/218 (99%)	195 (91%)	20 (9%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
45	L	370/564 (66%)	325 (88%)	45 (12%)	0	100	100
46	M	328/374 (88%)	302 (92%)	26 (8%)	0	100	100
47	J	572/599 (96%)	506 (88%)	65 (11%)	1 (0%)	47	81
48	N	441/548 (80%)	385 (87%)	56 (13%)	0	100	100
49	X	76/78 (97%)	72 (95%)	4 (5%)	0	100	100
51	4	140/333 (42%)	119 (85%)	21 (15%)	0	100	100
52	O	294/315 (93%)	264 (90%)	30 (10%)	0	100	100
53	Y	408/472 (86%)	312 (76%)	94 (23%)	2 (0%)	29	68
54	Z	108/113 (96%)	94 (87%)	14 (13%)	0	100	100
All	All	10761/13821 (78%)	9789 (91%)	966 (9%)	6 (0%)	54	84

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
33	V	175	LYS
53	Y	224	ILE
35	j	86	PRO
53	Y	51	ALA
47	J	193	GLU
33	V	174	VAL

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	a	180/243 (74%)	180 (100%)	0	100	100
2	p	192/231 (83%)	192 (100%)	0	100	100
3	d	182/225 (81%)	182 (100%)	0	100	100
4	Q	88/98 (90%)	88 (100%)	0	100	100
5	q	220/225 (98%)	220 (100%)	0	100	100
6	W	23/24 (96%)	23 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	r	193/218 (88%)	193 (100%)	0	100	100
8	s	155/174 (89%)	155 (100%)	0	100	100
9	t	174/180 (97%)	173 (99%)	1 (1%)	86	94
10	c	160/168 (95%)	160 (100%)	0	100	100
11	n	125/142 (88%)	123 (98%)	2 (2%)	62	83
12	m	130/131 (99%)	130 (100%)	0	100	100
13	y	66/67 (98%)	66 (100%)	0	100	100
14	D	112/113 (99%)	112 (100%)	0	100	100
15	z	106/113 (94%)	105 (99%)	1 (1%)	78	90
16	R	74/76 (97%)	74 (100%)	0	100	100
17	T	35/48 (73%)	35 (100%)	0	100	100
19	w	111/122 (91%)	110 (99%)	1 (1%)	78	90
20	b	188/202 (93%)	188 (100%)	0	100	100
21	e	159/170 (94%)	158 (99%)	1 (1%)	86	94
22	u	86/136 (63%)	86 (100%)	0	100	100
23	v	94/108 (87%)	93 (99%)	1 (1%)	73	88
24	o	107/130 (82%)	106 (99%)	1 (1%)	78	90
25	g	114/121 (94%)	114 (100%)	0	100	100
26	k	122/132 (92%)	120 (98%)	2 (2%)	62	83
27	x	111/115 (96%)	111 (100%)	0	100	100
28	h	91/107 (85%)	90 (99%)	1 (1%)	73	88
29	P	62/103 (60%)	62 (100%)	0	100	100
30	S	54/62 (87%)	54 (100%)	0	100	100
31	l	47/49 (96%)	47 (100%)	0	100	100
32	U	51/140 (36%)	51 (100%)	0	100	100
33	V	256/275 (93%)	254 (99%)	2 (1%)	81	91
34	i	98/119 (82%)	98 (100%)	0	100	100
35	j	111/115 (96%)	110 (99%)	1 (1%)	78	90
36	G	75/95 (79%)	75 (100%)	0	100	100
38	B	90/702 (13%)	90 (100%)	0	100	100
39	A	546/1259 (43%)	546 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
40	C	554/811 (68%)	552 (100%)	2 (0%)	91 96
41	E	380/406 (94%)	376 (99%)	4 (1%)	73 88
42	F	237/289 (82%)	236 (100%)	1 (0%)	91 96
43	H	269/310 (87%)	267 (99%)	2 (1%)	84 93
44	K	192/193 (100%)	190 (99%)	2 (1%)	76 88
45	L	342/515 (66%)	341 (100%)	1 (0%)	92 97
46	M	305/335 (91%)	305 (100%)	0	100 100
47	J	506/526 (96%)	505 (100%)	1 (0%)	93 98
48	N	398/494 (81%)	396 (100%)	2 (0%)	88 94
51	4	109/304 (36%)	108 (99%)	1 (1%)	78 90
52	O	190/280 (68%)	190 (100%)	0	100 100
53	Y	33/397 (8%)	33 (100%)	0	100 100
54	Z	79/96 (82%)	79 (100%)	0	100 100
All	All	8382/11694 (72%)	8352 (100%)	30 (0%)	91 96

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
9	t	155	ASN
11	n	22	ARG
11	n	69	ARG
15	z	101	LYS
19	w	5	ARG
21	e	122	ARG
23	v	45	ARG
24	o	72	LYS
26	k	8	LYS
26	k	142	ARG
28	h	19	ARG
33	V	12	LYS
33	V	117	ASN
35	j	29	LYS
40	C	147	LYS
40	C	347	ARG
41	E	74	ARG
41	E	102	ARG
41	E	132	TYR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
41	E	193	LYS
42	F	210	ARG
43	H	131	ARG
43	H	337	ASN
44	K	8	ARG
44	K	76	ASN
45	L	499	ASN
47	J	433	ARG
48	N	54	ARG
48	N	311	ASN
51	4	285	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
8	s	25	GLN
8	s	168	HIS
9	t	84	ASN
11	n	13	GLN
15	z	22	GLN
21	e	148	ASN
26	k	134	GLN
27	x	11	GLN
39	A	44	GLN
39	A	221	ASN
39	A	512	GLN
40	C	637	GLN
42	F	345	GLN
43	H	207	ASN
43	H	212	ASN
43	H	324	ASN
43	H	328	GLN
44	K	47	ASN
44	K	55	GLN
44	K	151	GLN
45	L	499	ASN
47	J	496	GLN
48	N	73	HIS
48	N	242	GLN
54	Z	89	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
18	2	1708/1721 (99%)	512 (29%)	7 (0%)
50	f	74/75 (98%)	24 (32%)	0
All	All	1782/1796 (99%)	536 (30%)	7 (0%)

All (536) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
18	2	2	A
18	2	4	C
18	2	5	U
18	2	11	A
18	2	25	A
18	2	33	G
18	2	41	G
18	2	44	U
18	2	45	A
18	2	46	A
18	2	56	G
18	2	64	A
18	2	65	C
18	2	67	C
18	2	68	A
18	2	71	G
18	2	73	C
18	2	74	G
18	2	75	G
18	2	76	U
18	2	77	A
18	2	79	A
18	2	92	A
18	2	100	U
18	2	103	A
18	2	113	G
18	2	115	U
18	2	126	G
18	2	129	C
18	2	130	G
18	2	143	U
18	2	147	A
18	2	149	A
18	2	155	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	163	U
18	2	165	G
18	2	175	A
18	2	178	C
18	2	182	C
18	2	184	G
18	2	193	C
18	2	195	C
18	2	196	C
18	2	197	U
18	2	198	U
18	2	199	C
18	2	201	C
18	2	202	G
18	2	204	G
18	2	205	G
18	2	210	U
18	2	214	U
18	2	220	U
18	2	224	A
18	2	291	G
18	2	292	A
18	2	293	C
18	2	297	A
18	2	308	G
18	2	309	G
18	2	312	G
18	2	315	C
18	2	319	C
18	2	320	G
18	2	331	C
18	2	332	G
18	2	333	G
18	2	335	G
18	2	344	U
18	2	345	U
18	2	346	C
18	2	347	G
18	2	362	C
18	2	364	A
18	2	367	U
18	2	368	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	381	C
18	2	382	C
18	2	385	G
18	2	386	C
18	2	391	C
18	2	400	C
18	2	402	C
18	2	407	G
18	2	409	C
18	2	418	A
18	2	421	G
18	2	426	A
18	2	435	A
18	2	448	A
18	2	449	A
18	2	450	C
18	2	455	A
18	2	464	A
18	2	465	A
18	2	466	G
18	2	472	C
18	2	473	A
18	2	474	G
18	2	476	A
18	2	485	A
18	2	487	U
18	2	489	A
18	2	492	C
18	2	493	A
18	2	517	C
18	2	523	A
18	2	525	A
18	2	532	C
18	2	536	A
18	2	538	U
18	2	539	C
18	2	540	U
18	2	541	U
18	2	543	C
18	2	544	G
18	2	545	A
18	2	547	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	548	C
18	2	549	C
18	2	552	G
18	2	553	U
18	2	554	A
18	2	555	A
18	2	556	U
18	2	559	G
18	2	563	G
18	2	564	A
18	2	568	C
18	2	570	C
18	2	574	A
18	2	575	A
18	2	576	A
18	2	587	A
18	2	588	G
18	2	591	U
18	2	593	C
18	2	594	A
18	2	600	G
18	2	604	A
18	2	606	G
18	2	607	U
18	2	608	C
18	2	614	C
18	2	617	G
18	2	621	C
18	2	623	G
18	2	627	U
18	2	628	A
18	2	629	A
18	2	639	C
18	2	640	A
18	2	642	U
18	2	643	A
18	2	644	G
18	2	646	G
18	2	655	A
18	2	658	U
18	2	659	G
18	2	660	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	662	G
18	2	664	A
18	2	668	A
18	2	669	A
18	2	671	A
18	2	672	A
18	2	673	G
18	2	691	G
18	2	692	G
18	2	694	G
18	2	699	C
18	2	707	C
18	2	709	G
18	2	713	C
18	2	721	G
18	2	722	C
18	2	723	C
18	2	727	G
18	2	732	U
18	2	733	C
18	2	739	C
18	2	747	U
18	2	748	C
18	2	749	U
18	2	750	C
18	2	751	G
18	2	752	G
18	2	792	C
18	2	793	G
18	2	794	A
18	2	795	A
18	2	796	G
18	2	798	G
18	2	799	U
18	2	811	A
18	2	821	G
18	2	822	U
18	2	823	U
18	2	824	C
18	2	827	A
18	2	830	A
18	2	834	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	845	G
18	2	847	A
18	2	862	A
18	2	869	A
18	2	870	A
18	2	872	A
18	2	873	G
18	2	874	G
18	2	875	A
18	2	881	G
18	2	882	U
18	2	883	U
18	2	884	C
18	2	886	A
18	2	887	U
18	2	888	U
18	2	889	U
18	2	890	U
18	2	891	G
18	2	893	U
18	2	894	G
18	2	897	U
18	2	898	U
18	2	899	U
18	2	900	C
18	2	901	G
18	2	902	G
18	2	904	A
18	2	912	C
18	2	913	A
18	2	914	U
18	2	919	A
18	2	920	A
18	2	921	G
18	2	922	A
18	2	933	G
18	2	938	A
18	2	943	U
18	2	952	G
18	2	954	U
18	2	963	A
18	2	969	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	970	G
18	2	971	G
18	2	983	A
18	2	989	C
18	2	990	A
18	2	992	A
18	2	997	A
18	2	1001	A
18	2	1002	U
18	2	1006	C
18	2	1008	A
18	2	1017	U
18	2	1019	C
18	2	1021	U
18	2	1023	A
18	2	1026	C
18	2	1045	U
18	2	1047	C
18	2	1049	A
18	2	1050	A
18	2	1053	C
18	2	1056	U
18	2	1058	A
18	2	1059	G
18	2	1060	A
18	2	1061	U
18	2	1062	A
18	2	1081	U
18	2	1083	A
18	2	1085	C
18	2	1087	A
18	2	1088	U
18	2	1089	G
18	2	1096	G
18	2	1100	A
18	2	1109	C
18	2	1113	A
18	2	1114	U
18	2	1115	U
18	2	1116	C
18	2	1117	C
18	2	1118	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	1120	U
18	2	1138	C
18	2	1143	A
18	2	1148	A
18	2	1153	C
18	2	1154	U
18	2	1157	G
18	2	1168	G
18	2	1170	A
18	2	1171	G
18	2	1180	C
18	2	1183	A
18	2	1188	A
18	2	1195	A
18	2	1197	G
18	2	1207	G
18	2	1210	G
18	2	1215	C
18	2	1216	C
18	2	1218	C
18	2	1224	G
18	2	1240	A
18	2	1242	U
18	2	1243	U
18	2	1250	A
18	2	1251	A
18	2	1253	A
18	2	1256	G
18	2	1257	G
18	2	1258	A
18	2	1259	A
18	2	1263	U
18	2	1265	A
18	2	1269	G
18	2	1271	C
18	2	1273	C
18	2	1274	G
18	2	1275	G
18	2	1282	A
18	2	1283	C
18	2	1285	G
18	2	1286	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	1287	A
18	2	1293	A
18	2	1295	A
18	2	1298	G
18	2	1300	U
18	2	1301	A
18	2	1302	G
18	2	1303	C
18	2	1304	U
18	2	1305	C
18	2	1308	U
18	2	1312	G
18	2	1313	A
18	2	1315	U
18	2	1316	C
18	2	1323	U
18	2	1330	G
18	2	1333	U
18	2	1341	C
18	2	1342	U
18	2	1344	A
18	2	1352	G
18	2	1358	U
18	2	1362	U
18	2	1371	U
18	2	1372	U
18	2	1375	G
18	2	1376	A
18	2	1378	A
18	2	1381	G
18	2	1382	A
18	2	1387	G
18	2	1389	C
18	2	1397	U
18	2	1398	G
18	2	1403	C
18	2	1405	A
18	2	1406	G
18	2	1407	U
18	2	1415	C
18	2	1425	G
18	2	1428	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	1429	G
18	2	1430	C
18	2	1431	G
18	2	1442	U
18	2	1444	U
18	2	1449	G
18	2	1452	A
18	2	1455	A
18	2	1462	U
18	2	1463	U
18	2	1464	C
18	2	1475	G
18	2	1477	U
18	2	1478	U
18	2	1480	A
18	2	1483	A
18	2	1484	A
18	2	1485	U
18	2	1487	A
18	2	1489	A
18	2	1493	C
18	2	1494	U
18	2	1495	G
18	2	1497	G
18	2	1498	A
18	2	1500	G
18	2	1502	C
18	2	1504	U
18	2	1508	A
18	2	1520	G
18	2	1521	C
18	2	1522	A
18	2	1523	C
18	2	1531	A
18	2	1532	C
18	2	1533	A
18	2	1536	G
18	2	1541	G
18	2	1543	U
18	2	1548	G
18	2	1552	G
18	2	1553	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	1555	U
18	2	1556	A
18	2	1557	C
18	2	1558	C
18	2	1559	C
18	2	1561	A
18	2	1573	G
18	2	1575	G
18	2	1577	G
18	2	1580	A
18	2	1581	C
18	2	1585	U
18	2	1586	U
18	2	1587	G
18	2	1588	A
18	2	1591	C
18	2	1592	C
18	2	1599	U
18	2	1601	A
18	2	1602	U
18	2	1603	G
18	2	1604	G
18	2	1606	G
18	2	1613	G
18	2	1617	G
18	2	1620	A
18	2	1621	U
18	2	1622	U
18	2	1623	A
18	2	1624	U
18	2	1637	A
18	2	1639	G
18	2	1641	A
18	2	1642	U
18	2	1646	C
18	2	1648	G
18	2	1651	A
18	2	1654	G
18	2	1664	A
18	2	1665	G
18	2	1669	G
18	2	1671	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	1682	C
18	2	1686	G
18	2	1687	C
18	2	1695	A
18	2	1698	C
18	2	1699	A
18	2	1703	C
18	2	1718	G
18	2	1720	U
18	2	1721	U
18	2	1726	G
18	2	1729	U
18	2	1733	U
18	2	1737	G
18	2	1742	C
18	2	1744	G
18	2	1746	U
18	2	1751	C
18	2	1752	C
18	2	1753	C
18	2	1755	C
18	2	1756	C
18	2	1758	G
18	2	1759	G
18	2	1760	G
18	2	1761	U
18	2	1772	C
18	2	1773	C
18	2	1774	C
18	2	1776	G
18	2	1777	G
18	2	1781	A
18	2	1783	C
18	2	1784	G
18	2	1785	C
18	2	1787	G
18	2	1800	A
18	2	1805	G
18	2	1806	A
18	2	1814	G
18	2	1821	U
18	2	1824	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
18	2	1825	A
18	2	1831	A
18	2	1834	A
18	2	1835	A
18	2	1838	U
18	2	1839	U
18	2	1840	U
18	2	1849	A
18	2	1851	A
18	2	1854	U
18	2	1861	G
18	2	1862	G
18	2	1863	A
18	2	1865	C
18	2	1866	A
18	2	1869	A
50	f	2	G
50	f	6	A
50	f	9	A
50	f	12	G
50	f	16	C
50	f	18	G
50	f	19	G
50	f	20	A
50	f	21	A
50	f	22	G
50	f	24	G
50	f	35	A
50	f	48	C
50	f	49	G
50	f	52	G
50	f	56	C
50	f	58	A
50	f	59	A
50	f	69	U
50	f	70	G
50	f	72	U
50	f	74	C
50	f	75	C
50	f	76	A

All (7) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
18	2	332	G
18	2	1058	A
18	2	1060	A
18	2	1292	C
18	2	1474	A
18	2	1621	U
18	2	1698	C

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 13 ligands modelled in this entry, 7 are monoatomic - leaving 6 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	$\#\|Z\| > 2$
60	MET	f	701	-	6,7,8	0.55	0	2,7,9	0.79	0
59	ATP	J	605	58	26,33,33	4.88	7 (26%)	31,52,52	2.57	8 (25%)
56	SF4	J	601	47	0,12,12	-	-	-		
57	ADP	J	603	58	24,29,29	3.70	8 (33%)	29,45,45	3.33	7 (24%)
56	SF4	J	602	47	0,12,12	-	-	-		
61	GTP	Y	501	58	26,34,34	1.15	1 (3%)	32,54,54	1.63	8 (25%)

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
60	MET	f	701	-	-	0/5/6/8	-
59	ATP	J	605	58	-	7/18/38/38	0/3/3/3
56	SF4	J	601	47	-	-	0/6/5/5
57	ADP	J	603	58	-	5/12/32/32	0/3/3/3
61	GTP	Y	501	58	-	3/18/38/38	0/3/3/3
56	SF4	J	602	47	-	-	0/6/5/5

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
59	J	605	ATP	C2'-C1'	-17.64	1.27	1.53
59	J	605	ATP	O4'-C1'	11.30	1.56	1.41
57	J	603	ADP	C2'-C3'	-10.56	1.24	1.53
59	J	605	ATP	C3'-C4'	-9.80	1.28	1.53
57	J	603	ADP	O4'-C1'	7.68	1.51	1.41
57	J	603	ADP	O4'-C4'	-6.52	1.30	1.45
57	J	603	ADP	C3'-C4'	5.50	1.67	1.53
57	J	603	ADP	C2'-C1'	5.32	1.61	1.53
59	J	605	ATP	C2'-C3'	4.60	1.65	1.53
61	Y	501	GTP	C5-C6	-4.23	1.38	1.47
59	J	605	ATP	O4'-C4'	4.22	1.54	1.45
57	J	603	ADP	O2'-C2'	3.82	1.52	1.43
57	J	603	ADP	C5-C4	-3.40	1.31	1.40
59	J	605	ATP	C6-N6	3.22	1.45	1.34
57	J	603	ADP	C6-N6	3.06	1.45	1.34
59	J	605	ATP	C5-C4	-2.85	1.33	1.40

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
57	J	603	ADP	C1'-N9-C4	13.28	149.97	126.64
59	J	605	ATP	C5-C6-N6	7.46	131.69	120.35
57	J	603	ADP	C5-C6-N6	7.18	131.26	120.35
59	J	605	ATP	C1'-N9-C4	5.95	137.10	126.64
57	J	603	ADP	N3-C2-N1	-5.71	119.75	128.68
59	J	605	ATP	N3-C2-N1	-5.16	120.61	128.68
59	J	605	ATP	N6-C6-N1	-5.13	107.92	118.57
57	J	603	ADP	N6-C6-N1	-4.74	108.73	118.57
59	J	605	ATP	PA-O3A-PB	-4.55	117.21	132.83
61	Y	501	GTP	PA-O3A-PB	-3.80	119.78	132.83
57	J	603	ADP	PA-O3A-PB	-3.69	120.18	132.83
59	J	605	ATP	C3'-C2'-C1'	3.68	106.52	100.98

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
61	Y	501	GTP	C5-C6-N1	3.38	119.92	113.95
61	Y	501	GTP	C3'-C2'-C1'	3.21	105.82	100.98
61	Y	501	GTP	C2-N1-C6	-3.04	119.49	125.10
59	J	605	ATP	PB-O3B-PG	-2.92	122.81	132.83
61	Y	501	GTP	PB-O3B-PG	-2.54	124.10	132.83
61	Y	501	GTP	C8-N7-C5	2.50	107.74	102.99
57	J	603	ADP	C3'-C2'-C1'	2.42	104.62	100.98
61	Y	501	GTP	O6-C6-C5	-2.37	119.74	124.37
59	J	605	ATP	C2'-C3'-C4'	2.22	106.96	102.64
61	Y	501	GTP	O2G-PG-O3B	2.15	111.85	104.64
57	J	603	ADP	C2'-C3'-C4'	2.03	106.58	102.64

There are no chirality outliers.

All (15) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
57	J	603	ADP	C5'-O5'-PA-O2A
59	J	605	ATP	C5'-O5'-PA-O3A
61	Y	501	GTP	C5'-O5'-PA-O1A
57	J	603	ADP	O4'-C4'-C5'-O5'
59	J	605	ATP	O4'-C4'-C5'-O5'
59	J	605	ATP	C4'-C5'-O5'-PA
59	J	605	ATP	PB-O3B-PG-O1G
57	J	603	ADP	C5'-O5'-PA-O3A
61	Y	501	GTP	C5'-O5'-PA-O3A
57	J	603	ADP	C5'-O5'-PA-O1A
59	J	605	ATP	C5'-O5'-PA-O2A
57	J	603	ADP	C3'-C4'-C5'-O5'
59	J	605	ATP	PA-O3A-PB-O1B
61	Y	501	GTP	O4'-C4'-C5'-O5'
59	J	605	ATP	PA-O3A-PB-O2B

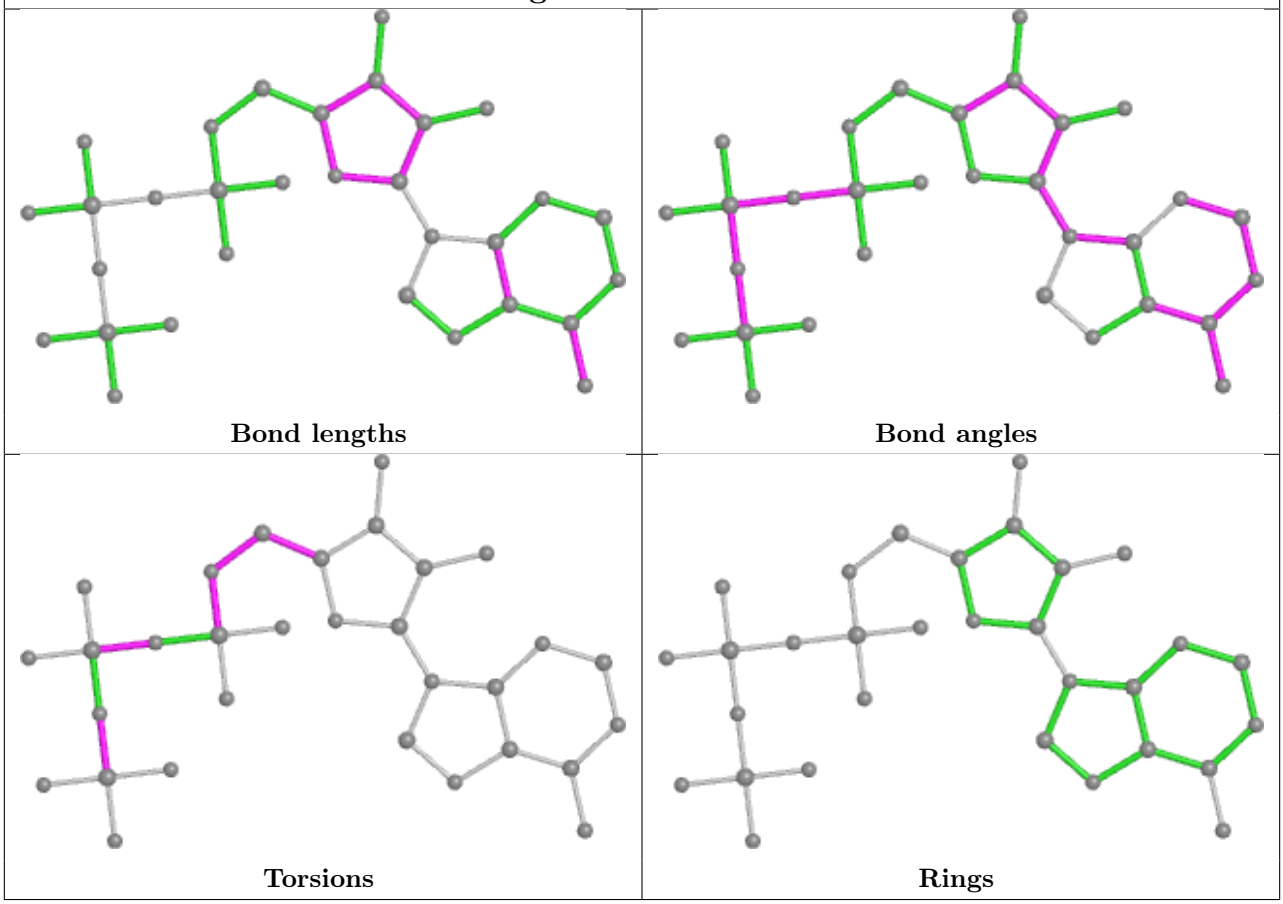
There are no ring outliers.

No monomer is involved in short contacts.

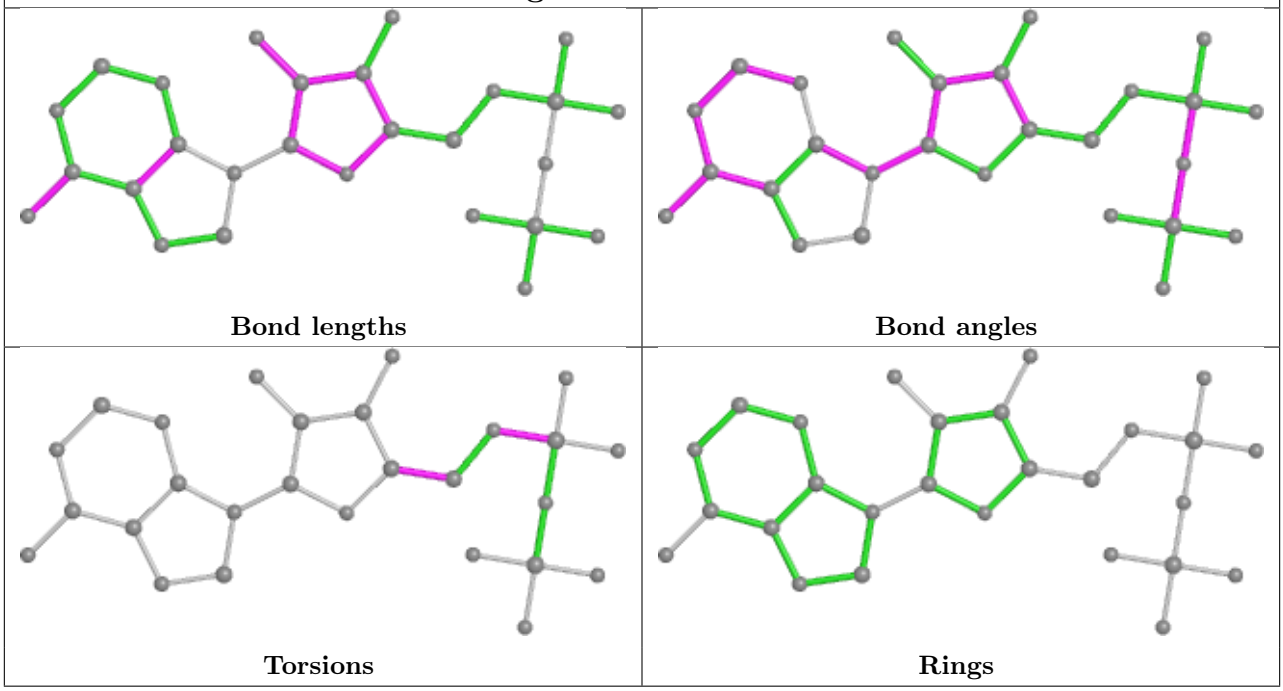
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

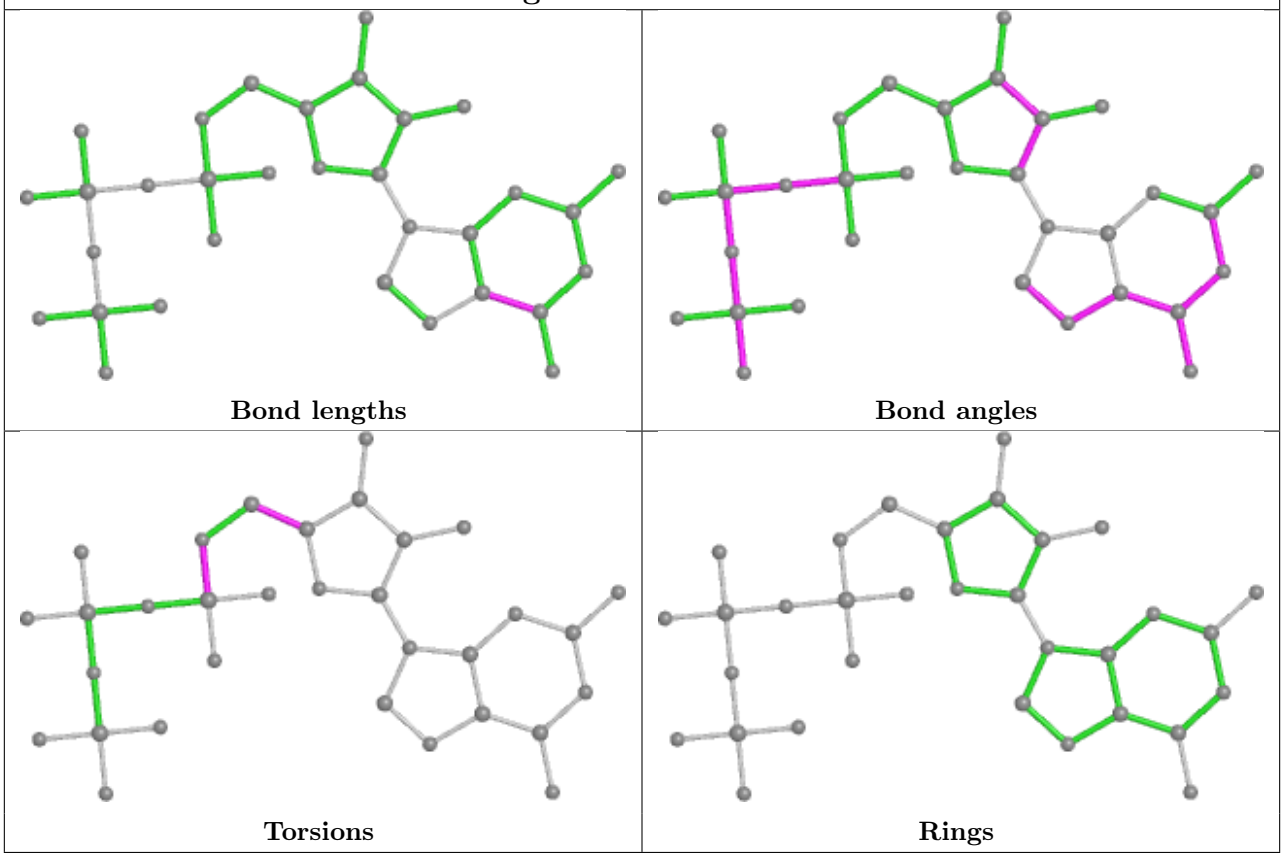
Ligand ATP J 605



Ligand ADP J 603



Ligand GTP Y 501



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
18	2	3
46	M	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	M	96:GLY	C	97:GLU	N	10.75
1	2	1207:G	O3'	1208:A	P	4.50
1	2	368:U	O3'	369:C	P	3.24
1	2	1682:C	O3'	1683:C	P	3.13

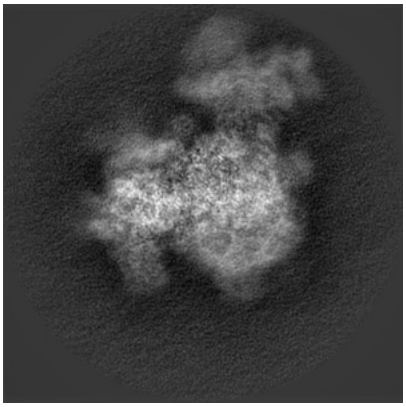
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-11602. These allow visual inspection of the internal detail of the map and identification of artifacts.

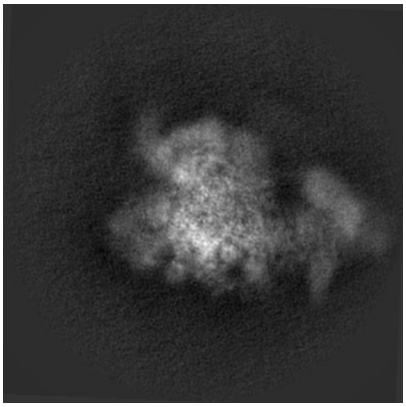
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

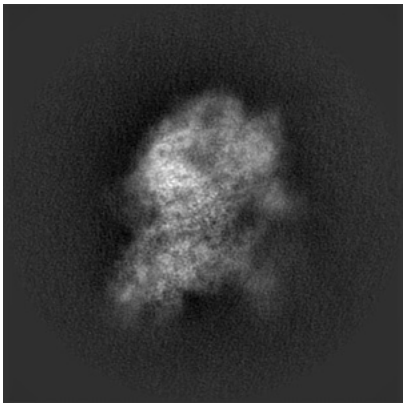
6.1.1 Primary map



X



Y

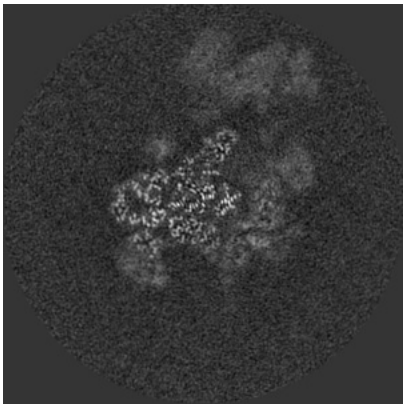


Z

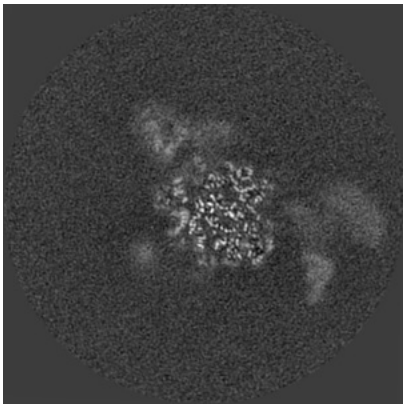
The images above show the map projected in three orthogonal directions.

6.2 Central slices

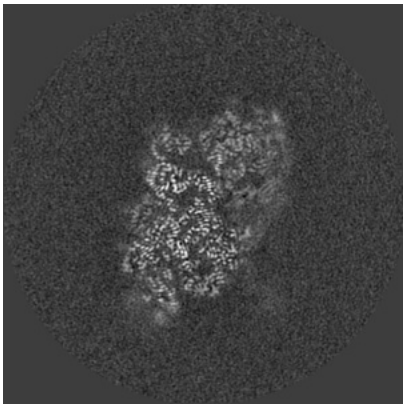
6.2.1 Primary map



X Index: 200



Y Index: 200

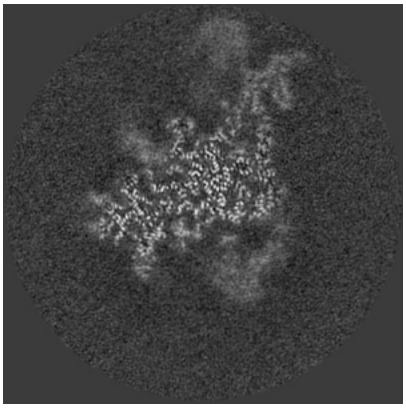


Z Index: 200

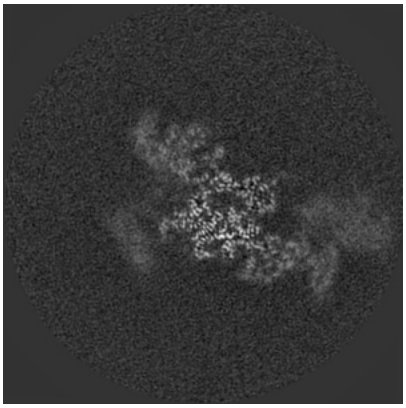
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

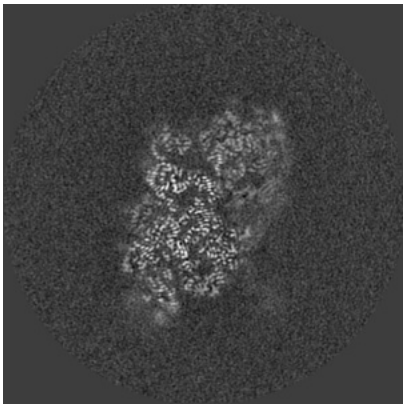
6.3.1 Primary map



X Index: 165



Y Index: 218

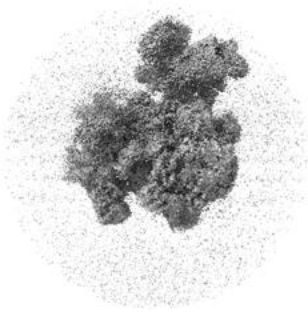


Z Index: 200

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

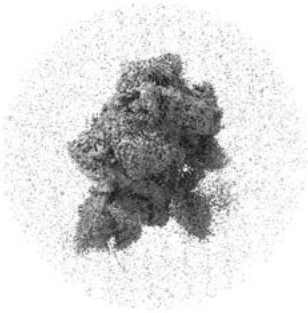
6.4 Orthogonal surface views (i)

6.4.1 Primary map



X

Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

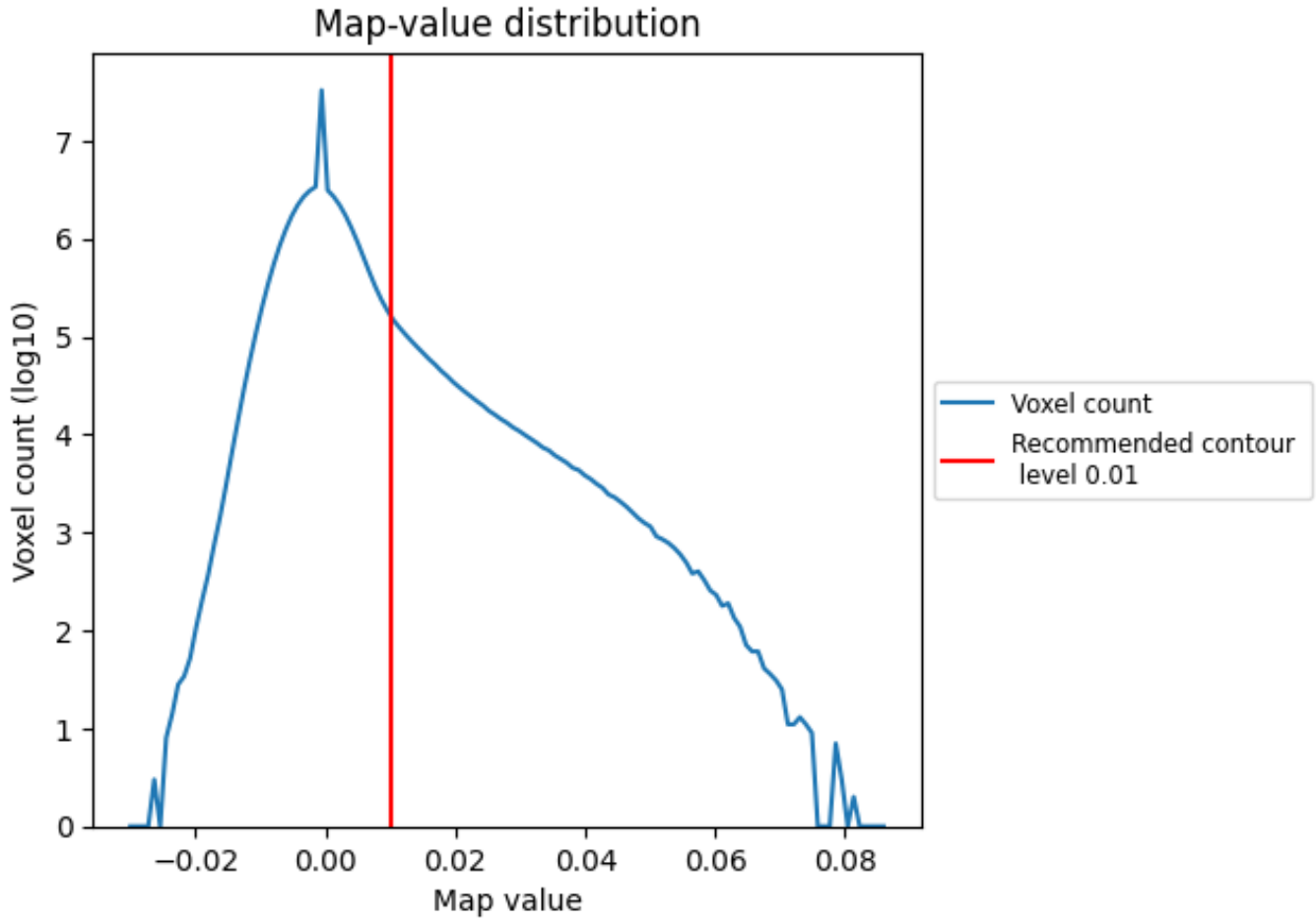
6.5 Mask visualisation (i)

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

7 Map analysis

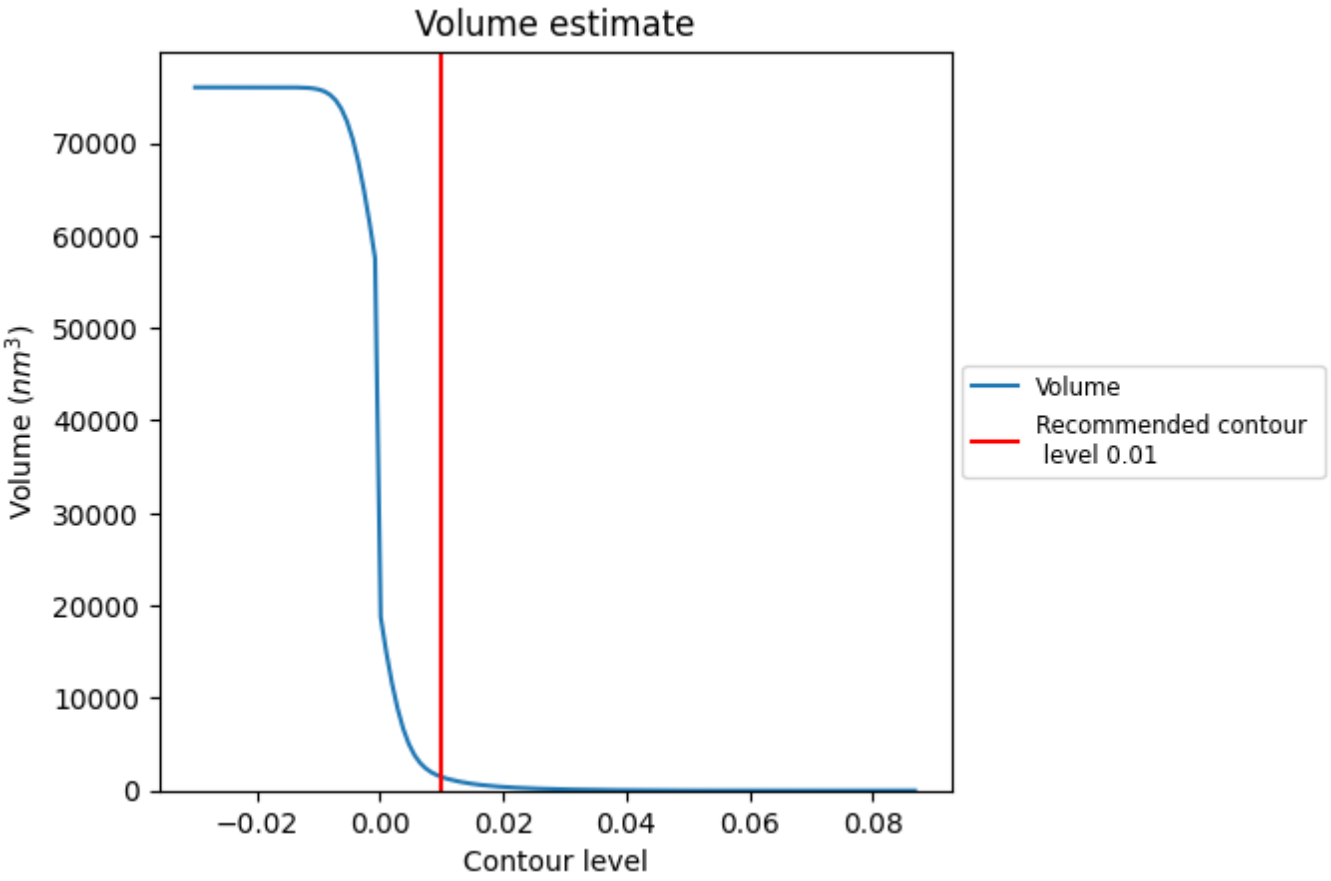
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

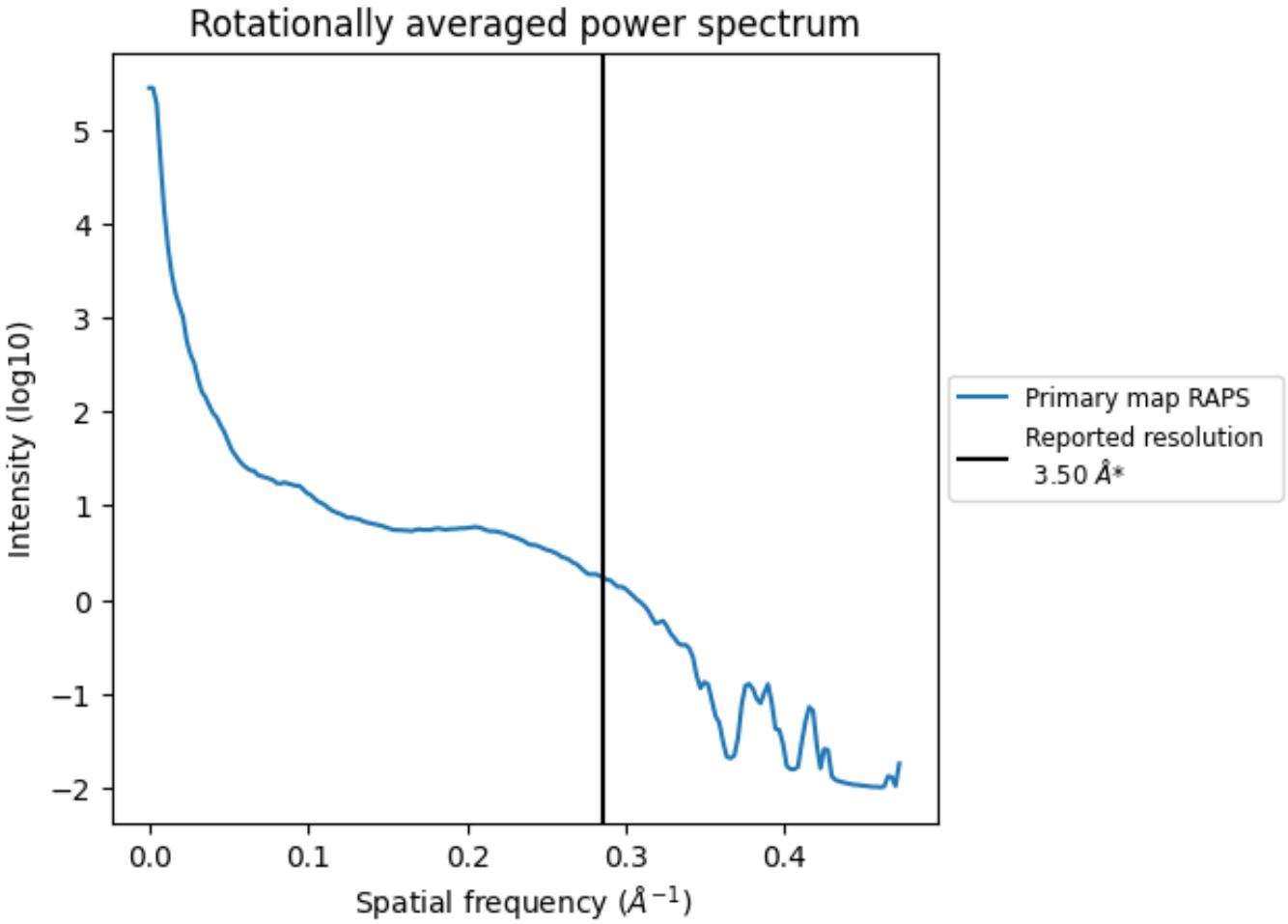
7.2 Volume estimate



The volume at the recommended contour level is 1473 nm^3; this corresponds to an approximate mass of 1330 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)

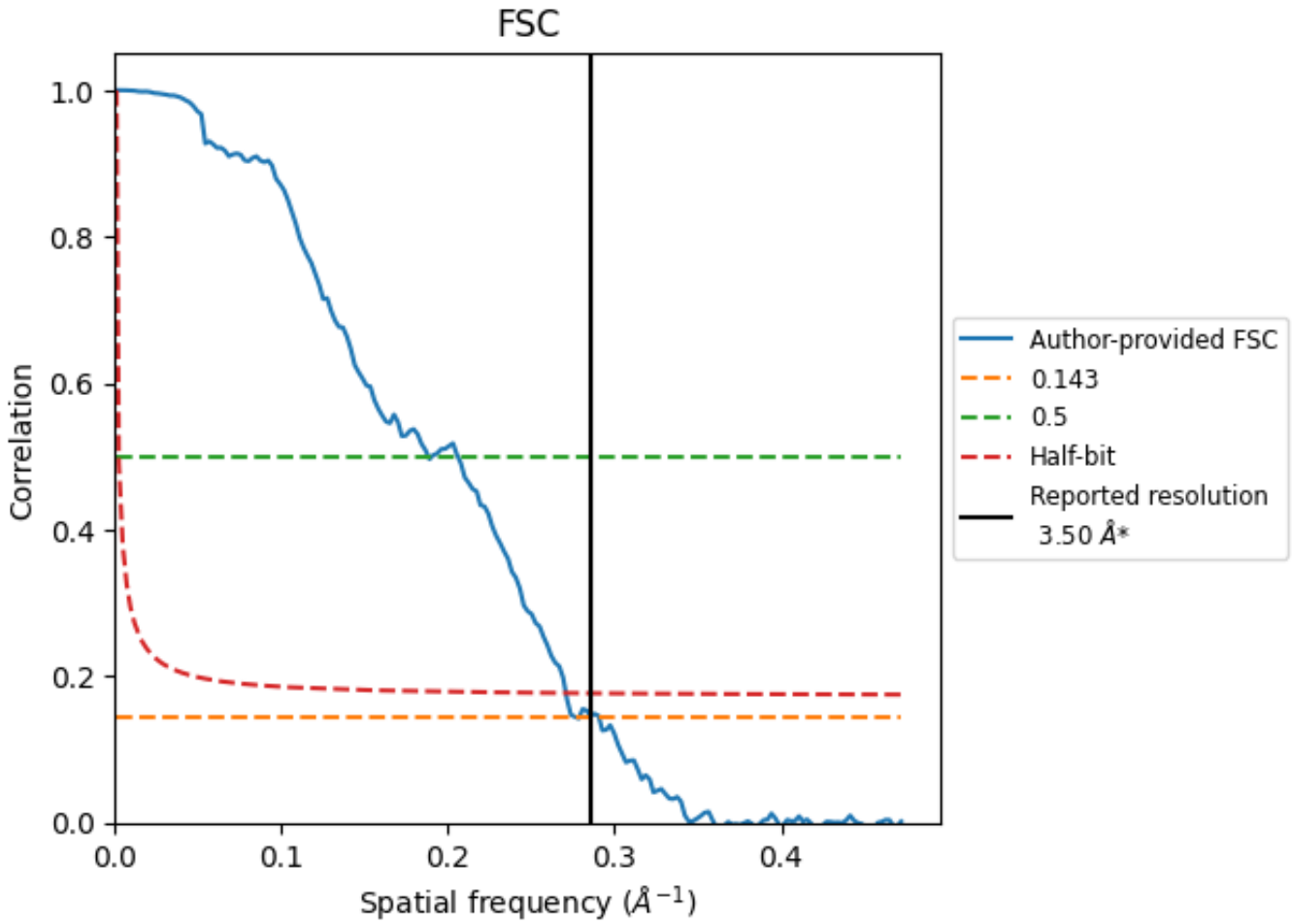


*Reported resolution corresponds to spatial frequency of 0.286 Å^{-1}

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 0.286 Å^{-1}

8.2 Resolution estimates (i)

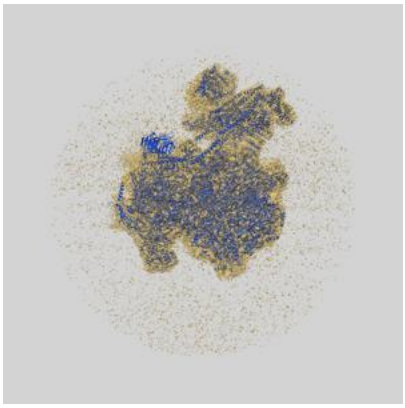
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.60	5.32	3.69
Unmasked-calculated*	-	-	-

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

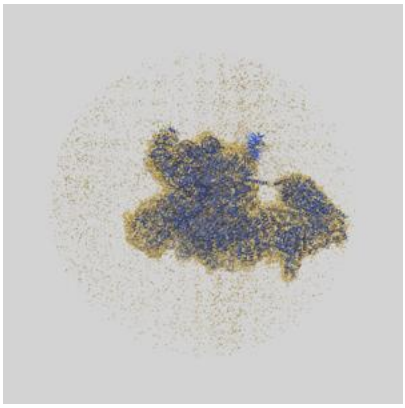
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-11602 and PDB model 7A09. Per-residue inclusion information can be found in section 3 on page 17.

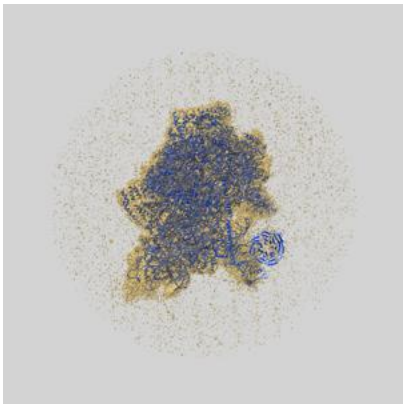
9.1 Map-model overlay



X



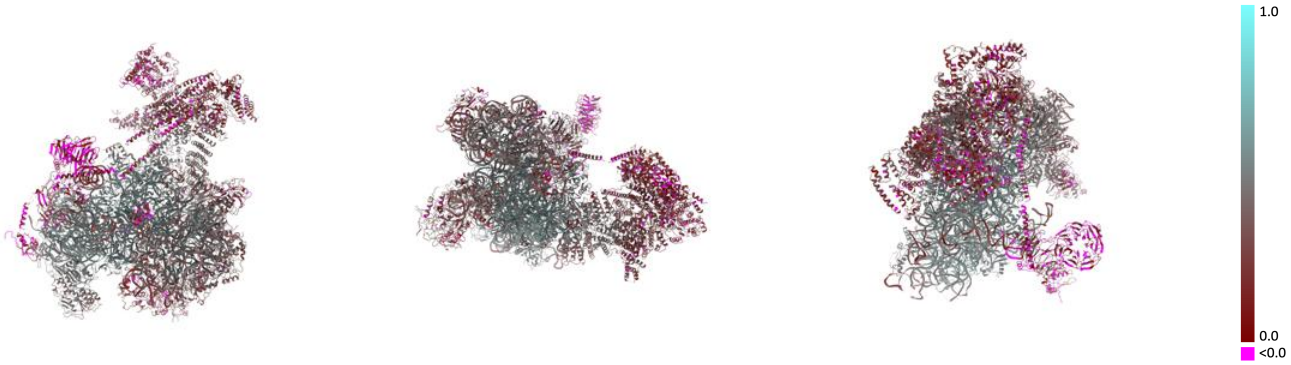
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01 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.

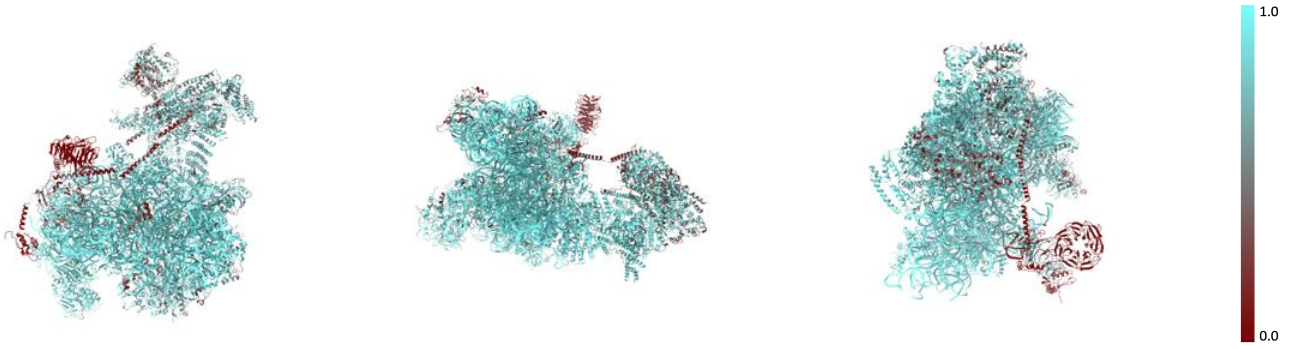
9.2 Q-score mapped to coordinate model (i)



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.

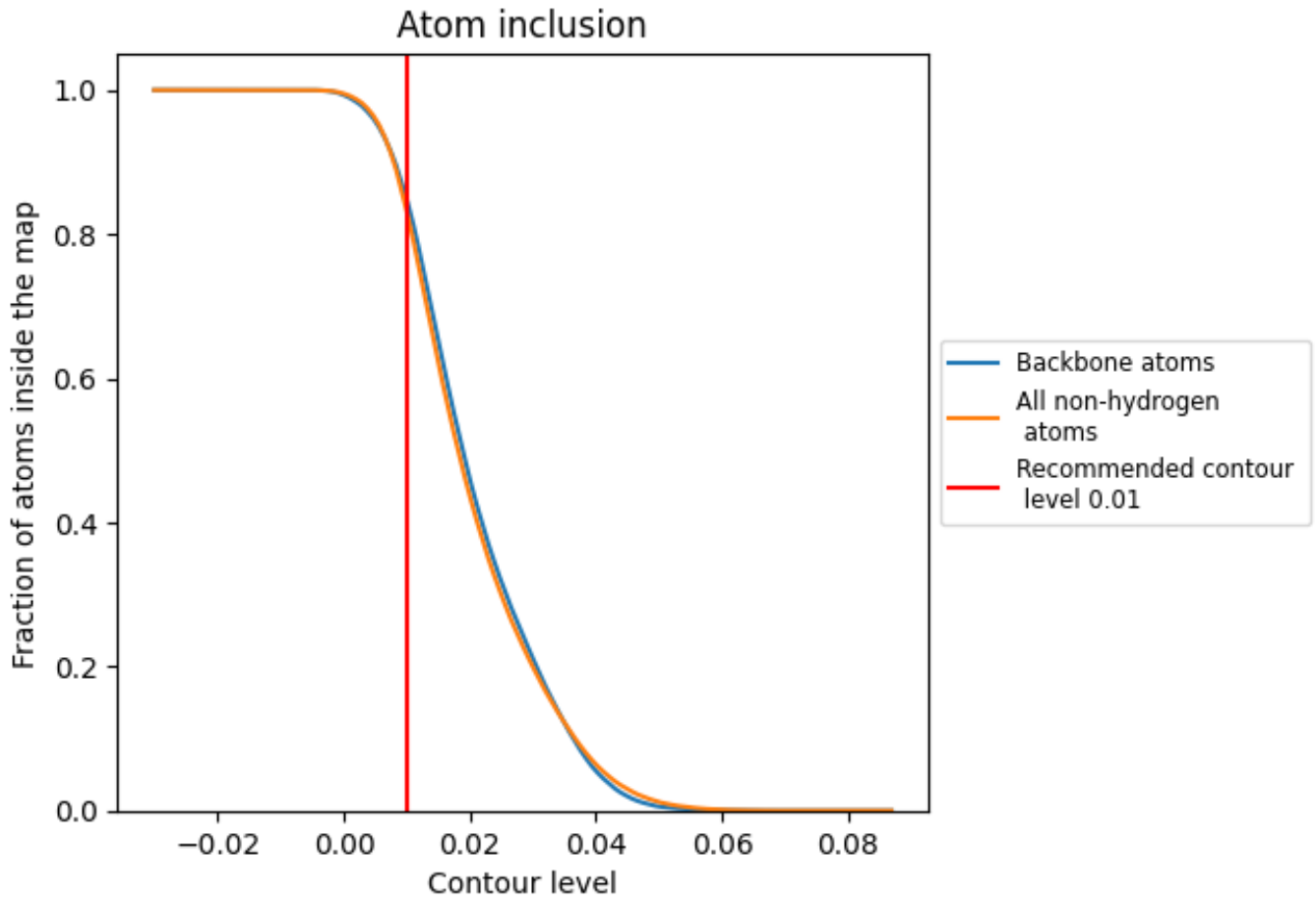
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.01).

9.4 Atom inclusion (i)



At the recommended contour level, 85% of all backbone atoms, 83% 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 (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8327	0.3990
2	0.9681	0.4800
4	0.7783	0.3780
A	0.7277	0.3030
B	0.3864	0.1700
C	0.8434	0.3840
D	0.9366	0.5480
E	0.7772	0.2550
F	0.6334	0.2030
G	0.8456	0.4710
H	0.6509	0.2120
I	0.0127	0.0160
J	0.8726	0.4370
K	0.5397	0.1930
L	0.4400	0.1530
M	0.6985	0.2230
N	0.7118	0.2910
O	0.7866	0.3250
P	0.8493	0.3750
Q	0.9258	0.5360
R	0.9252	0.5260
S	0.8438	0.4400
T	0.9410	0.5160
U	0.6040	0.2410
V	0.8268	0.3880
W	0.9378	0.5250
X	0.4282	0.1410
Y	0.7719	0.2760
Z	0.7595	0.4040
a	0.9261	0.5140
b	0.8102	0.4000
c	0.9319	0.5300
d	0.9373	0.5420
e	0.8762	0.4380
f	0.9323	0.3740

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
g	0.8534	0.4370
h	0.7905	0.4100
i	0.9341	0.5180
j	0.9299	0.5520
k	0.7998	0.3770
l	0.8476	0.4420
m	0.9408	0.5280
n	0.9456	0.5440
o	0.6789	0.3310
p	0.9442	0.5270
q	0.9510	0.5420
r	0.9354	0.4860
s	0.9038	0.4810
t	0.9417	0.5080
u	0.7618	0.3280
v	0.5053	0.2240
w	0.8706	0.4640
x	0.8938	0.4100
y	0.9378	0.5280
z	0.9267	0.5150