WORLDWIDE PDB
PROTEIN DATA BANK

wwPDB EM Validation Summary Report (i)

Nov 3, 2024 – 11:25 pm GMT

PDB ID	:	8PJ4
EMDB ID	:	EMD-17699
Title	:	Structure of human 48S translation initiation complex after eIF5 release (48S-4)
Authors	:	Petrychenko, V.; Yi, S.-H.; Liedtke, D.; Peng, B.Z.; Rodnina, M.V.; Fischer, N.
Deposited on	:	2023-06-22
Resolution	:	3.20 Å(reported)

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

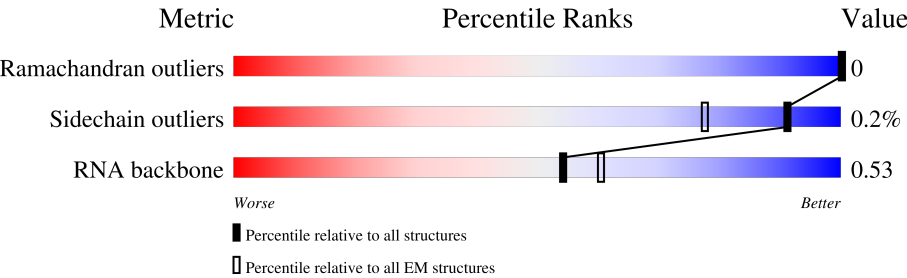|		
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 3.20 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	Percentile Ranks	Value
Ramachandran outliers		0
Sidechain outliers		0.2%
RNA backbone		0.53

Worse   *Better*

▮ Percentile relative to all structures

▯ Percentile relative to all EM structures

Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	0	1220	• 51% 49%
2	1	814	60% 72% 28%
3	2	325	94% 94% 6%
4	3	218	70% 98% •
5	4	357	32% 72% 28%
6	5	564	61% 92% • 8%
7	6	374	48% 96% • •
8	7	255	7% 7% 14% • 78%
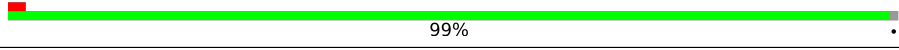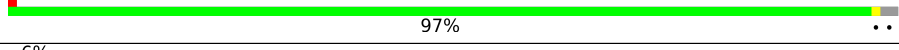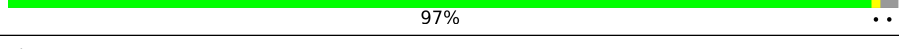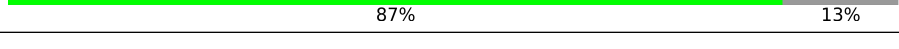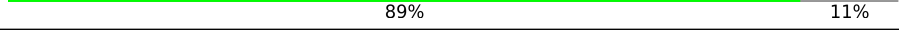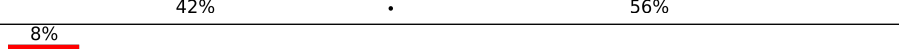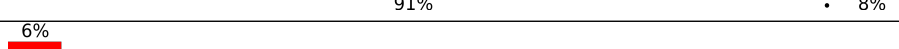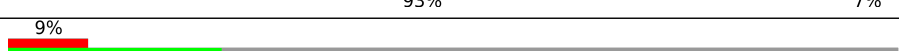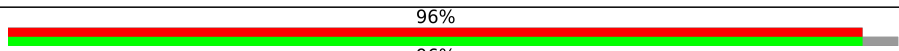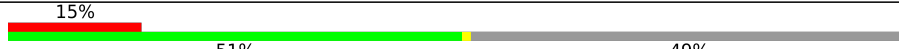
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Mol	Chain	Length	Quality of chain
9	8	352	44% / 90% / 10%
10	9	25	96%
11	A	1869	69% / 23% / 6%
12	B	158	89% / 10%
13	C	263	97%
14	D	194	91% / 9%
15	E	143	98%
16	F	133	44% / 56%
17	G	194	90% / 9%
18	H	84	96%
19	I	151	99%
20	J	130	98%
21	K	83	98%
22	L	293	74% / 25%
23	M	135	96%
24	N	295	70% / 30%
25	O	264	80% / 20%
26	P	151	87% / 12%
27	Q	115	85% / 14%
28	R	208	95% / 5%
29	S	249	92% / 8%
30	T	133	93% / 6%
31	V	204	93% / 7%
32	Y	146	96%
33	Z	243	93% / 7%

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Mol	Chain	Length	Quality of chain
34	a	165	60% 40%
35	b	145	89% 10%
36	c	317	99%
37	d	145	97%
38	e	125	6% 63% 35%
39	f	152	97%
40	h	119	87% 13%
41	i	56	89% 11%
42	k	156	42% 56%
43	m	132	8% 91% 8%
44	n	69	6% 93% 7%
45	o	320	9% 24% 76%
46	q	144	81% 19%
47	r	315	64% 93% 6%
48	t	472	96% 96%
49	u	1382	15% 51% 49%
50	v	445	22% 90% 9%
51	w	75	56% 39% 5%
52	x	548	14% 77% 23%
53	y	913	6% 58% 41%

2 Entry composition (i)

There are 57 unique types of molecules in this entry. The entry contains 121694 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 Eukaryotic translation initiation factor 5B.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	621	Total 4920	C 3135	N 850	O 913	S 22	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	588	Total 3258	C 1986	N 633	O 634	S 5	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
3	2	304	Total 1493	C 885	N 304	O 304	0	0

- Molecule 4 is a protein called Eukaryotic translation initiation factor 3 subunit K.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	3	213	Total 1057	C 631	N 213	O 213	0	0

- Molecule 5 is a protein called Eukaryotic translation initiation factor 3 subunit F.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	4	257	Total 1272	C 757	N 257	O 258	0	0

- Molecule 6 is a protein called Eukaryotic translation initiation factor 3 subunit L.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	5	520	Total 4347	C 2814	N 721	O 793	S 19	0	0

- Molecule 7 is a protein called Eukaryotic translation initiation factor 3 subunit M.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	6	362	Total 2196	C 1348	N 414	O 427	S 7	0	0

- Molecule 8 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	7	57	Total 1218	C 547	N 231	O 383	P 57	0	0

- Molecule 9 is a protein called Eukaryotic translation initiation factor 3 subunit H.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	8	317	Total 1574	C 937	N 318	O 319	0	0

- Molecule 10 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	9	24	Total 230	C 139	N 62	O 26	S 3	0	0

- Molecule 11 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	A	1754	Total 37429	C 16718	N 6714	O 12244	P 1753	0	0

- Molecule 12 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	B	142	Total 1166	C 743	N 218	O 199	S 6	0	0

- Molecule 13 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	C	256	Total 2035	C 1302	N 378	O 347	S 8	0	0

- Molecule 14 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	D	177	Total	C	N	O	S	0	0
			1477	941	295	239	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	E	140	Total	C	N	O	S	0	0
			1087	687	215	182	3		

- Molecule 16 is a protein called Small ribosomal subunit protein eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	F	58	Total	C	N	O	S	0	0
			452	279	98	74	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	125	PRO	LYS	conflict	UNP P62861

- Molecule 17 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	G	177	Total	C	N	O	S	0	0
			1430	917	260	252	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	H	81	Total	C	N	O	S	0	0
			631	397	116	111	7		

- Molecule 19 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	I	150	Total	C	N	O	S	0	0
			1208	773	229	205	1		

- Molecule 20 is a protein called 40S ribosomal protein S15a.

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

- Molecule 21 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	K	81	Total	C	N	O	S	0	0
			617	380	114	118	5		

- Molecule 22 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	L	220	Total	C	N	O	S	0	0
			1707	1104	292	301	10		

- Molecule 23 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	M	131	Total	C	N	O	S	0	0
			1064	668	198	194	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
24	N	207	Total	C	N	O	S	0	0
			1633	1040	288	297	8		

- Molecule 25 is a protein called 40S ribosomal protein S3a.

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

- Molecule 26 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	P	133	Total	C	N	O	S	0	0
			997	610	196	185	6		

- Molecule 27 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Q	99	Total 792	C 492	N 165	O 130	S 5	0	0

- Molecule 28 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	R	198	Total 1627	C 1021	N 322	O 279	S 5	0	0

- Molecule 29 is a protein called 40S ribosomal protein S6.

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

- Molecule 30 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	T	125	Total 1015	C 642	N 199	O 169	S 5	0	0

- Molecule 31 is a protein called 40S ribosomal protein S5.

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

- Molecule 32 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Y	141	Total 1124	C 715	N 212	O 194	S 3	0	0

- Molecule 33 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Z	227	Total 1765	C 1125	N 317	O 315	S 8	0	0

- Molecule 34 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	99	Total	C	N	O	S	0	0
			834	544	149	135	6		

- Molecule 35 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	b	131	Total	C	N	O	S	0	0
			1072	682	201	182	7		

- Molecule 36 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	c	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 37 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	d	142	Total	C	N	O	S	0	0
			1105	692	213	197	3		

- Molecule 38 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	e	81	Total	C	N	O	S	0	0
			649	420	119	109	1		

- Molecule 39 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	f	149	Total	C	N	O	S	0	0
			1227	770	249	207	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	h	103	Total	C	N	O	S	0	0
			817	511	155	147	4		

- Molecule 41 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	i	50	Total 419	C 262	N 85	O 67	S 5	0	0

- Molecule 42 is a protein called Ubiquitin.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	k	68	Total 554	C 349	N 103	O 95	S 7	0	0

- Molecule 43 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	m	122	Total 950	C 596	N 168	O 177	S 9	0	0

- Molecule 44 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	n	64	Total 506	C 308	N 102	O 94	S 2	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
45	o	77	Total 616	C 389	N 111	O 116	0	0

- Molecule 46 is a protein called Eukaryotic translation initiation factor 1A, X-chromosomal.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	q	117	Total 951	C 590	N 183	O 174	S 4	1	0

- Molecule 47 is a protein called Eukaryotic translation initiation factor 2 subunit 1.

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

- Molecule 48 is a protein called Eukaryotic translation initiation factor 2 subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	t	455	Total	C	N	O	S	0	0
			3439	2179	599	643	18		

- Molecule 49 is a protein called Eukaryotic translation initiation factor 3 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	u	706	Total	C	N	O	S	1	0
			5383	3379	982	999	23		

- Molecule 50 is a protein called Eukaryotic translation initiation factor 3 subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	v	405	Total	C	N	O	S	0	0
			2740	1720	498	510	12		

- Molecule 51 is a RNA chain called Initiator Met-tRNA-i.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	75	Total	C	N	O	P	0	0
			1604	717	298	515	74		

- Molecule 52 is a protein called Eukaryotic translation initiation factor 3 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	x	423	Total	C	N	O	S	0	0
			2842	1752	523	557	10		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
53	y	543	Total	C	N	O	S	0	0
			4361	2743	776	809	33		

- Molecule 54 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).

GTP
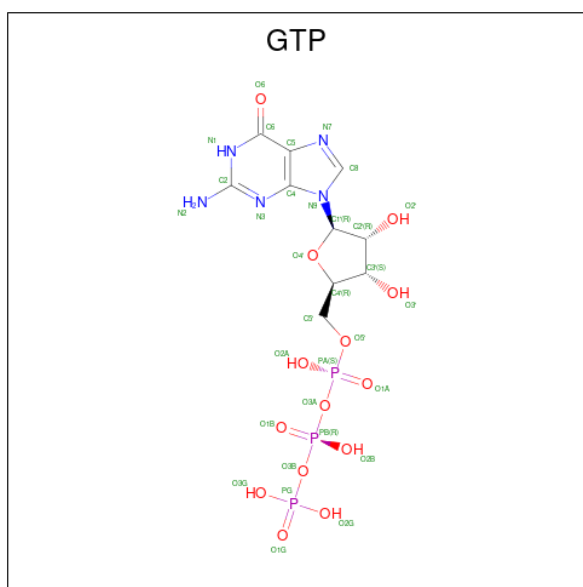
Mol	Chain	Residues	Atoms					AltConf
54	0	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 55 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		AltConf
55	0	1	Total	Na	0
			1	1	

- Molecule 56 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
56	0	1	Total	Mg	0
			1	1	
56	A	87	Total	Mg	0
			87	87	
56	f	1	Total	Mg	0
			1	1	

- Molecule 57 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

3 Residue-property plots ⓘ

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: Eukaryotic translation initiation factor 5B

• Molecule 2: Eukaryotic translation initiation factor 3 subunit B

MET GLN ASP ALA GLU ASN VAL VAL ALA VAL PRO GLU ALA ALA ALA GLU GLU ARG ALA GLU ALA GLU PRO GLY GLN GLN GLN GLN PRO ALA ALA GLU GLU PRO PRO ALA GLU GLY GLY LEU LEU ARG PRO ALA GLY PRO GLU ALA ALA GLY THR GLU ALA SER SER GLU GLU VAL GLY ILE ALA GLU ALA

GLY PRO GLU SER GLU VAL ARG THR GLU PRO ALA ALA GLU GLU ALA ALA SER GLY PRO SER GLU SER PRO SER PRO ALA GLU GLU LEU GLU PRO GLY SER HIS ALA GLU GLU PRO VAL PRO ALA ALA GLN GLY GLU GLU ALA PRO GLY GLU GLN ALA ARG ASP GLU ASP SER ARG

ALA GLN ALA VAL SER GLU ASP ALA GLY GLY GLY ASN GLU ARG ALA ALA GLU ALA GLU PRO ARG ALA ALA LEU GLU ASN GLY ASP ALA ASP GLU PRO SER PHE SER ASP PRO GLU ASP PHE VAL ASP ASP VAL SER GLU GLU GLU LEU **G170 D171 V172 L173 K174 D175 R176 P177 Q178 E179 A180**

D181 G182 I183 D184 S185 V186 I187 V188 V189 D190 N191 V192 P193 Q194 V195 G196 P197 D198 R199 L200 E201 K202 L203 K204 N205 V206 I207 H208 K209 I210 F211 S212 K213 F214 G215 K216 I217 T218 N219 D220 F221 Y222 P223 E224 E225 D226 G227 K228 T229 K230 G231 Y232 I233 F234 L235 E236 Y237 A238 S239 P240

A241 H242 A243 V244 D245 A246 V247 K248 N249 A250 D251 G252 Y253 K254 L255 D256 K257 Q258 H259 T260 F261 R262 V263 N264 L265 F266 T267 D268 F269 D270 K271 Y272 M273 T274 I275 S276 D277 E278 W279 D280 I281 K284 Q285 P286 F287 K288 D289 L290 G291 N292 L293 R294 Y295 W296 L297 E298 E299 A300 E301

C302 R303 D304 Q305 Y306 S307 V308 I309 F310 E311 S312 G313 I318 F319 W320 N321 D322 V323 K324 D325 P326 V327 S328 I329 E330 E331 R332 A333 R334 W335 T336 E337 T338 R341 P344 K345 G346 L349 A350 T351 F352 H353 Q354 I357 G361 G362 E363 K364 F365 K366 Q367 I368 Q369 R370

F371 S372 H373 Q374 G375 V376 Q377 L378 I379 D380 F381 S382 P383 C384 E385 R386 Y387 L388 F391 S392 P393 L394 M395 D396 T397 Q398 D399 D400 P401 W407 D408 I409 L410 T411 G412 H413 K414 K415 F418 H419 C420 E421 S422 S423 A424 H425 W426 P427 I428 F429 K430 W431 S432 H433 D434 G435 K436

F437 F438 A439 R440 M441 T442 L443 D444 T445 L446 S447 I448 T451 P452 S453 M454 G455 L456 L457 D458 K459 K460 S461 L462 K463 I464 S465 G476 N477 A480 F481 P484 E485 D486 K487 A491 T494 L495 M496 Q497 L498 P499 T500 R501 Q502 E503 F510 N511 D514 C515 K516 L517

H518 K521 N522 G523 D524 Y525 L526 C527 V528 K529 R532 THR PRO LYS GLY THR GLN GLY **V540 V541 T542 N543 F544 E545 I546 F547 R548 M549 R550 E551 K552 Q553 V554 P555 V556 D557 V558 V559 E560 M561 K562 E563 T564 I565 I566 A567 F568 P572 N573 K576 F577 A578 V579 L580 H581 G582**

E583 A584 P585 R586 I587 S588 V589 S590 F591 Y592 H593 V594 K595 N596 N597 G598 K599 I600 E601 L602 I603 K604 M605 F606 D607 K608 Q609 Q610 A611 N612 T613 I614 F615 W616 S617 P618 Q619 G620 Q621 F622 V623 V624 L625 A626 G627 L628 R629 S630 M631 N632 G633 A634 L635 A636 F637 V638 D639 T640 S641 D642

C643 T644 V645 M646 N647 I648 A649 E650 H651 Y652 M653 A654 S655 D656 V657 E658 W659 D660 P661 T662 G663 R664 Y665 V666 V667 T668 S669 W672 W673 S674 H675 K676 V677 D678 N679 A680 Y681 W682 L683 W684 T685 F686 Q687 G688 R689 L690 L691 Q692 K693 N694 N695 K696 D697 R698 F699 C700 Q701 L702 L703

W704 P708 P709 T710 L711 L712 S713 Q714 E715 Q716 I717 H718 Q719 I720 K721 K722 D723 L724 K725 K726 Y727 S728 K729 I730 F731 E732 Q733 K734 D735 R736 L737 S738 Q739 S740 K741 A742 S743 K744 E745 L746 V747 E748 R749 R750 R751 T752 M753 M754 E755 D756 F757 R758 K759 Y760 R761 K762 M763 A764 GLN

GLU LEU TYR MET GLU GLN LYS ASN GLU LEU ARG LEU GLU LEU ARG GLY VAL ASP VAL THR ASP GLU LEU ASP SER ASN VAL ASP ASP THR GLU GLU GLU GLY THR ILE GLU PHE VAL THR GLU GLU ILE ILE PRO LEU GLY ASN GLN GLU

● Molecule 3: Eukaryotic translation initiation factor 3 subunit I

94%

Chain 2:   94%   6%

M1 K2 P3 I4 L5 L6 Q7 G8 H9 E10 R11 S12 I13 T14 Q15 I16 K17 Y18 N19 R20 E21 G22 D23 L24 L25 F26 T27 V28 A29 K30 D31 P32 I33 V34 N35 V36 W37 Y38 S39 V40 N41 G42 E43 R44 L45 G46 T47 Y48 M49 G50 H51 T52 G53 A54 V55 V56 C57 V58 D59 A60

D61 W62 D63 T64 K65 H66 V67 L68 T69 G70 S71 A72 D73 N74 S75 C76 R77 L78 W79 D80 C81 E82 T83 G84 K85 Q86 L87 A88 L89 L90 K91 T92 N93 S94 A95 V96 R97 T98 C99 G100 F101 D102 F103 G104 G105 N106 I107 I108 M109 F110 S111 T112 ASP LYS GLN MET GLY TYR GLN CYS

F121 V122 S123 F124 F125 D126 L127 R128 D129 P130 S131 Q132 I133 D134 N135 N136 E137 P138 Y139 M140 K141 I142 P143 C144 N145 D146 S147 K148 I149 T150 S151 A152 V153 W154 G155 P156 L157 G158 E159 C160 I161 I162 A163 G164 H165 E166 S167 G168 E169 L170 N171 Q172 Y173 S174 A175 K176 S177 G178 E179 V180

L181 V182 N183 V184 K185 E186 H187 S188 R189 Q190 I191 N192 D193 I194 Q195 L196 S197 R198 D199 M200 T201 M202 F203 V204 T205 A206 S207 K208 D209 N210 T211 A212 K213 L214 F215 D216 S217 T218 T219 L220 E221 H222 Q223 K224 T225 F226 R227 T228 E229 R230 P231 V232 N233 S234 A235 A236 L237 S238 P239 N240

Y241 D242 H243 V244 V245 L246 G247 G248 G249 Q250 E251 A252 M253 D254 V255 T256 T257 T258 S259 T260 R261 I262 G263 K264 F265 E266 A267 R268 F269 F270 H271 L272 A273 E274 E275 E276 E277 F278 G279 R280 V281 K282 G283 H284 F285 G286 P287 I288 N289 S290 V291 A292 F293 H294 F295 D296 G297 K298 S299 Y300

S301 S302 G303 G304 E305 D306 G307 Y308 V309 R310 I311 H312 TYR PHE ASP PRO GLN TYR PHE GLU PHE GLU GLU ALA

• Molecule 4: Eukaryotic translation initiation factor 3 subunit K

Chain 3:

70%

98%

MET A2 M3 F4 E5 Q6 M7 R8 A9 N10 V11 G12 K13 L14 L15 K16 G17 I18 D19 R20 Y21 E24 N25 T28 L29 E30 R31 Y32 V33 E34 T35 Q36 A37 K38 E39 N40 A41 Y42 D43 L44 E45 A46 V50 L51 Q55 F56 N57 P58 A59 F60 F61 Q62 T63 T64 V65 T66

A67 Q68 I69 A73 N76 F82 T83 L84 C85 K86 C87 M88 I89 D90 Q91 Q94 E95 E96 R97 P98 I99 R100 Q101 I102 L103 Y104 L105 G106 D107 L108 L109 E110 T111 C112 Q115 A116 F117 W118 Q119 A120 L121 D122 E123 N124 M125 D126 L127 L128 E129 G130 I131 T132 E135 D136

V145 V146 G147 Q151 H152 I153 D154 R155 W156 L157 L158 A159 E160 M161 L162 L165 S166 D167 S168 Q169 L170 K171 V172 W173 M174 S175 K176 Y177 G178 W179 S180 A181 D182 E183 SER GLY Q186 I187 F188 I189 C190 S191 Q192 E193 E194 S195 I196 K197 P198 K199 N200 I201 V202 E203 K204 I205

D208 S209 V210 S211 S212 I213 S216 SER GLN

• Molecule 5: Eukaryotic translation initiation factor 3 subunit F

Chain 4:

32%

72%

28%

MET ALA THR PRO ALA VAL PRO VAL SER ALA PRO PRO ALA THR PRO PRO VAL PRO ALA ALA PRO ALA SER VAL PRO ALA PRO THR PRO ALA PRO ALA ALA PRO VAL PRO ALA ALA PRO ALA SER SER ASP PRO ALA ALA ALA ALA THR ALA ALA PRO GLY

GLN THR PRO ALA SER ALA GLN ALA PRO ALA GLN THR PRO ALA PRO ALA LEU PRO PRO GLY PRO PHE PRO ALA LEU PRO GLY PRO PRO GLY G89 R90 V91 V92 R93 L94 A100 S101 I102 V103 D104 R108 R109 N110 E111 G112 A113 T123 V124 D125 K126 H127 T132 N133 C134 F135 N140

E141 S142 GLU ASP E145 V146 A147 V148 D149 M150 E151 F152 A153 K154 N155 M156 L159 H160 K161 K162 V163 S164 P165 N166 L170 G171 W172 H177 D178 I179 T180 E181 H182 S183 V184 L185 I186 H187 E188 Y189 V190 S191 R192 E193 A194 P195 V202 D203 L206 Q207 N208 G209 R210 M211 S212

I213 Y216 V217 S218 THR LEU MET GLY VAL PRO GLY ARG THR MET G229 V230 M231 F232 T233 V237 K238 Y239 A240 Y241 Y242 D243 I247 G248 V249 D250 M253 K254 T255 S258 P259 N260 R261 V262 I263 G264 L265 S266 S267 D268 L269 Q270 Q271 V272 G273 A274 A275 S276 I279

A282 L283 V286 Y289 A290 E291 D292 V293 L294 S295 G296 K297 A300 D301 N302 P320 D321 N351 L354 V355 N356 L357

• Molecule 6: Eukaryotic translation initiation factor 3 subunit L

Chain 5:

61%
92% 8%

MET SER TYR PRO ALA ASP ASP TYR GLU SER GLU ALA ALA TYR ASP TYR ALA PRO TYR ALA TYR PRO SER ASP TYR ASP MET HIS THR GLY ASP PRO GLN ASP LYS GLN ASP LEU ALA TYR GLU ARG GLN GLU GLN GLN THR Y45 Q46 V47 I48 P49 E50 V51 I52 K53 N54 F55 I56 Q57 Y58 F59 H60

K61 T62 V63 S64 D65 L66 I67 D68 Q69 K70 V71 Y72 E73 L74 Q75 A76 S77 R78 V79 S80 S81 D82 V83 I84 D85 Q86 K87 V88 Y89 E90 I91 Q92 D93 I94 Y95 E96 N97 S98 T103 E104 R105 F106 F107 K108 N109 T110 P111 W112 P113 E114 A115 E116 A117 I118 A119 P120 Q121 V122 G123

N124 D125 A126 V127 F128 L129 I130 L131 Y132 K133 E134 L135 Y136 Y137 R138 H139 A142 K143 V144 S145 G146 G147 P148 S149 L150 E151 Q152 R153 F154 E155 Y158 N159 N162 N165 Y166 I167 L168 N169 A170 D171 G172 P173 A174 P175 L176 E177 L178 P179 N180 Q181 W182 L183 W184 D185 Y192

Q195 Q199 Y200 K203 T204 A205 K206 K207 S208 E209 E210 E211 I212 D213 F214 L215 R216 S217 N218 P219 H232 S233 L234 V235 D236 K237 S238 N239 I240 N241 R242 Q243 L244 E245 V246 V247 T248 S249 G250 G251 D252 P253 E254 S255 V256 A257 G258 E259 Y260 G261 R262 H263 S264 L265 Y266 K267

M268 L269 G270 Y271 P272 S273 L274 V275 G276 L277 L280 H281 S282 L283 Y287 Q288 Q289 A290 I291 K292 V293 L294 E295 N296 I297 E298 L299 N300 K301 K302 S303 M304 Y305 S306 R307 V308 P309 E310 C311 Q312 V313 T314 T315 Y316 A322 Y323 L324 R327 R334 A337 N338 I339 L340 L341

Y342 I343 Q344 R345 S348 M349 F350 Q351 R352 T353 T354 Y355 K356 Y357 E358 N361 K362 Q363 N364 E365 Q366 M367 H368 Y378 I382 D383 E384 S385 I386 H387 L388 E392 K393 Y394 G395 D396 K397 M398 L399 R400 M401 Q402 K403 G404 D405 P406 Q407 V408 Y409 E410 E411 L412 Y415 S416

C417 P418 K419 F420 L421 N427 Y428 D429 N430 V431 H432 P433 N434 Y435 H436 K437 F440 L441 Q442 Q443 L444 K445 V446 F447 S448 D449 E450 V451 Q452 Q453 C454 A455 Q456 L457 S458 T459 L466 Y467 T468 T469 M470 P471 V472 A473 K474 L475 A476 G477 F478 L479 D480 L481 T482 E483 Q484 E485

L500 T503 S504 G505 I506 S507 A508 L509 D510 G511 E512 F513 Q514 S515 A516 S517 E518 V519 D520 I523 D524 K525 D526 M527 I530 A531 D532 T533 K534 V535 A536 R537 R538 Y539 D540 D541 F542 F543 K549 R555 K558 G561 Q562 R563 P564

• Molecule 7: Eukaryotic translation initiation factor 3 subunit M

Chain 6:

48%
96%

MET SER VAL PRO ALA PHE ILE D8 I9 S10 E11 E12 D13 Q14 A15 A16 E17 I18 R19 A20 Y21 L22 K23 S24 K25 G26 A27 E28 I29 S30 E31 E32 N33 S34 E35 G36 G37 L38 H39 V40 D41 L42 A43 Q44 I45 I46 E47 A48 C49 D50 E55 D56 D57 K58 D59 V60 E61 S62

S66 L72 E75 P76 D77 K78 Q79 E80 A81 L82 I83 E84 S85 L86 C87 L90 V91 K92 F93 R94 E95 P99 H111 G112 K115 N116 T117 Y124 L127 I128 K129 V130 A131 A132 S133 A136 I137 Q138 Y139 I140 P141 T142 E143 L144 D145 Q146 V147 R148 K149 W150 I151

• Molecule 8: mRNA

• Molecule 9: Eukaryotic translation initiation factor 3 subunit H

• Molecule 10: 60S ribosomal protein L41

M1 R23 S24 LYS

• Molecule 11: 18S rRNA

Chain A: 69%   23%   • 6%
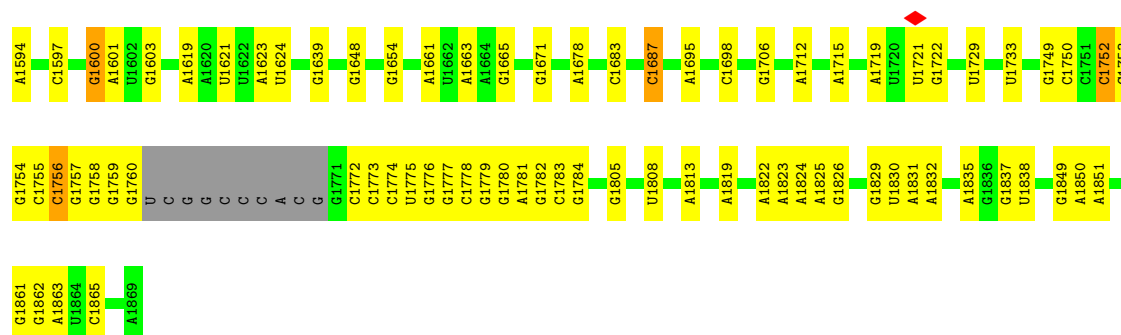
• Molecule 12: 40S ribosomal protein S11

Chain B:

89%   10%
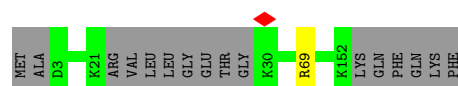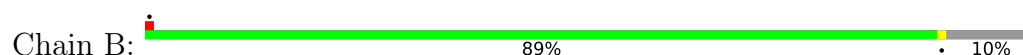
• Molecule 13: 40S ribosomal protein S4, X isoform

Chain C:

97%
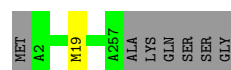
• Molecule 14: 40S ribosomal protein S9

Chain D:

91%   9%
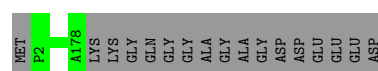
• Molecule 15: 40S ribosomal protein S23

Chain E:

98%
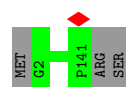
• Molecule 16: Small ribosomal subunit protein eS30

Chain F:

44%   56%

• Molecule 17: 40S ribosomal protein S7

Chain G:

• Molecule 18: 40S ribosomal protein S27

Chain H:

• Molecule 19: 40S ribosomal protein S13

Chain I:

• Molecule 20: 40S ribosomal protein S15a

Chain J:

• Molecule 21: 40S ribosomal protein S21

Chain K:

• Molecule 22: 40S ribosomal protein S2
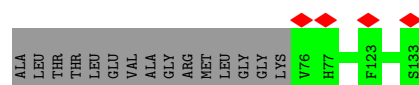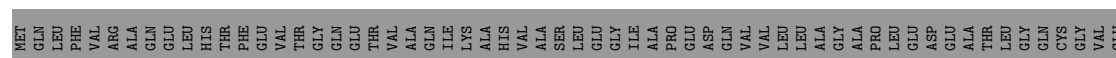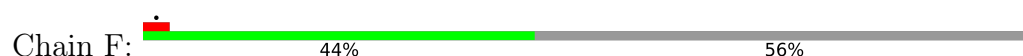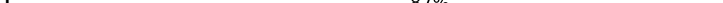
Chain L:

• Molecule 23: 40S ribosomal protein S17

Chain M:

96%

MET G2 E76 E87 I95 D110 R132 GLY PRO VAL

• Molecule 24: 40S ribosomal protein SA

Chain N:

70%　　　30%

MET S2 D6 E208 GLU ILE GLU LYS GLU GLU GLN ALA ALA GLU LYS ALA VAL THR LYS GLU GLU PHE GLN GLY GLU TRP THR ALA PRO ALA PRO GLU PHE THR ALA THR GLN PRO GLU VAL VAL ALA ASP TRP SER GLY VAL GLN VAL PRO SER VAL PRO ILE GLN GLN PHE

PRO THR GLU ASP TRP SER ALA GLN PRO ALA THR GLU ASP TRP SER ALA ALA PRO THR ALA GLN ALA THR GLU GLU TRP VAL GLY ALA THR TRP ASP TRP SER

• Molecule 25: 40S ribosomal protein S3a

Chain O:

80%　　　20%

MET ALA VAL GLY LYS ASN LYS ARG LEU THR LYS GLY GLY LYS LYS GLY ALA LYS LYS LYS VAL VAL D23 D191 G233 GLU GLY SER SER SER GLY LYS ALA THR GLY ASP GLU THR GLY ALA LYS VAL GLU ARG ALA ASP GLY TYR GLU PRO PRO VAL GLN GLU SER VAL

• Molecule 26: 40S ribosomal protein S14

Chain P:

87%　　　12%

MET ALA PRO ARG LYS GLY LYS GLU LYS LYS GLU GLU GLN VAL ILE SER LEU GLY P19 Q20 V21 A22 E23 L151

• Molecule 27: 40S ribosomal protein S26

Chain Q:

85%　　　14%

MET T2 D60 D94 R100 PHE ARG PRO ALA GLY ALA ALA PRO ARG PRO PRO LYS PRO MET

• Molecule 28: 40S ribosomal protein S8

Chain R:

95%　　　5%

MET G2 K124 LYS GLY ALA LYS LEU THR PRO GLU E133 G207 LYS

• Molecule 29: 40S ribosomal protein S6

Chain S:

92%　　　8%

M1 R98 P122 K230 ARG ARG LEU SER SER LEU ARG ALA SER THR SER LYS SER GLU SER SER GLN LYS
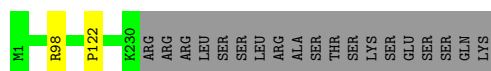
• Molecule 30: 40S ribosomal protein S24

Chain T:
93% 6%

MET ASN ASP T4 K100 G128 LYS LYS PRO LYS GLU
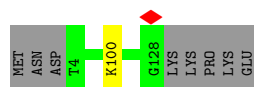
• Molecule 31: 40S ribosomal protein S5

Chain V:
93% 7%

MET THR GLU TRP GLU THR ALA ALA PRO ALA VAL ALA GLU THR PRO D16 R130 A131 R204
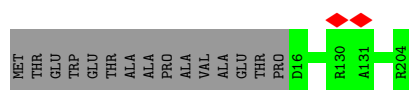
• Molecule 32: 40S ribosomal protein S16

Chain Y:
96%

MET PRO SER LYS GLY P6 D110 R146
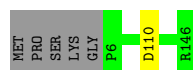
• Molecule 33: 40S ribosomal protein S3

Chain Z:
93% 7%

M1 A2 D169 E212 P213 K214 D215 K227 GLY GLY LYS PRO GLU PRO PRO ALA MET PRO GLN PRO VAL PRO THR ALA
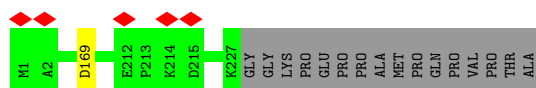
• Molecule 34: 40S ribosomal protein S10

Chain a:
60% 40%

M1 R98 P99 GLU THR GLY ARG PRO ARG PRO LYS GLY LEU GLU GLY GLU ARG PRO ALA ARG LEU THR ARG GLY GLU ALA ASP ARG ASP THR TYR ARG ARG SER ALA VAL PRO PRO GLY ALA ASP LYS LYS ALA GLU ALA ALA GLY GLY SER ALA THR GLU GLN PHE ARG GLY GLY

PHE GLY ARG GLY ARG GLY GLN PRO PRO GLN

• Molecule 35: 40S ribosomal protein S15

Chain b:
89% 10%

MET ALA GLU VAL GLU GLN LYS LYS LYS ARG THR PHE ARG LYS F15 M34 P68 P69 M70 K145

• Molecule 36: Receptor of activated protein C kinase 1

Chain c:

99%

MET T2 I275 S276 T277 S278 S279 I314 GLY THR ARG

• Molecule 37: 40S ribosomal protein S19

Chain d:

97%

MET PRO G3 M88 K144 HIS

• Molecule 38: 40S ribosomal protein S25

6%

Chain e:

63% 35%

MET PRO PRO LYS ASP ASP LYS LYS LYS LYS ASP ALA GLY LYS SER ALA LYS LYS ASP LYS ASP PRO VAL ASN LYS SER GLY GLY LYS A30 K31 K32 K33 K34 W35 S36 K37 G38 K39 K60 T110 ARG ASN THR LYS GLY GLY ASP ALA PRO ALA ALA GLY GLU ASP ALA

• Molecule 39: 40S ribosomal protein S18

Chain f:

97%

MET SER LEU V4 D62 D104 K151 K152

• Molecule 40: 40S ribosomal protein S20

Chain h:

87% 13%

MET ALA PHE LYS ASP THR GLY LYS THR PRO VAL GLU PRO GLU VAL ALA I17 A117 D118 A119

• Molecule 41: 40S ribosomal protein S29

Chain i:

89% 11%

MET GLY HIS GLN GLN LEU Y7 D56

• Molecule 42: Ubiquitin

Chain k:

42% 56%

MET GLN ILE PHE VAL LYS THR LEU THR GLY LYS THR ILE THR LEU GLU VAL GLU PRO SER ASP THR ILE GLU ASN VAL LYS ALA LYS ILE GLN ASP LYS GLU GLY ILE PRO PRO ASP GLN GLN ARG LEU ILE PHE ALA GLY LYS GLN LEU GLU ASP GLY ARG THR LEU SER ASP TYR ASN

ILE GLN LYS GLU SER THR LEU HIS LEU VAL LEU ARG LEU ARG GLY GLY ALA LYS LYS ARG LYS LYS LYS S84 Y85 M132 R138 N151 LYS PRO GLU ASP LYS

• Molecule 43: 40S ribosomal protein S12

Chain m: 8%   91%   8%

MET ALA GLU GLY GLY ILE ALA ALA GLY GLY V11 D80 L91 D95 R96 E97 G98 K99 K129 C130 K131 K132

• Molecule 44: 40S ribosomal protein S28

Chain n: 6%   93%   7%

MET ASP THR SER R5 V6 R67 L68 ARG

• Molecule 45: Eukaryotic translation initiation factor 3 subunit G

Chain o: 9%   24%   76%

MET PRO THR GLY ASP PHE ASP SER LYS PRO SER TRP ALA ASP GLN VAL GLU GLU GLU GLY GLU ASP ASP LYS CYS VAL THR SER GLU LEU LEU LYS GLY ILE LEU PRO LEU THR ALA THR GLY ASP SER THR SER PRO GLU PRO GLU LEU LEU LEU PRO GLY ALA PRO LEU PRO PRO PRO LYS GLU VAL ILE

ASN GLY ASN ILE LYS THR VAL THR GLU GLU TYR LYS ILE ASP THR ALA GLU GLY ASP GLY LYS LYS PHE LYS ILE LEU VAL ARG THR PHE ARG ILE GLU THR ARG LYS ALA LYS SER LYS ILE ALA VAL ALA ARG ARG LYS ASN TRP LYS PHE LYS LYS PHE GLY ASN SER GLU PHE SER SER PRO PRO GLY PRO ASN VAL ALA THR THR

THR VAL SER ASP ASP VAL SER MET THR PHE ILE THR SER LYS GLU ASP LEU ASN CYS GLN GLU GLU GLU ASP PRO MET ASN LYS LEU LYS GLY ILE GLN LYS ILE VAL SER ARG ILE CYS LYS GLY ASP HIS TRP THR THR ARG ASP CYS PRO TYR LYS ASP LEU GLY MET GLN LYS

GLU LEU ALA GLU GLN LEU GLY LEU SER THR GLY GLU GLU LYS GLU GLU LEU PRO GLY GLU LEU GLU PRO VAL GLN ALA THR GLN ASN LYS SER THR GLY LYS TYR VAL PRO PRO SER LEU ARG ASP GLY ALA SER ARG ARG GLY GLU GLN SER MET GLN PRO ASN ARG ARG ALA ASP ASP N238 E248

D249 T250 E257 L258 F259 R260 P261 F262 G263 I268 K274 T275 T276 H288 R289 R290 E291 D292 A293 A296 I297 A298 G299 V300 S301 G302 F303 D306 E313 W314 ALA LYS PRO SER THR ASN

• Molecule 46: Eukaryotic translation initiation factor 1A, X-chromosomal

Chain q: 81%   19%

MET P2 G107 E111 H112 N116 E117 T118 ASP THR PHE GLY PRO GLY ASP ASP ASP GLU ILE GLN PHE ASP ASP ILE GLY ASP ASP ASP GLU ASP ILE ASP ASP ILE

• Molecule 47: Eukaryotic translation initiation factor 2 subunit 1

Chain r: 64%   93%   6%

MET PRO GLY L3 S4 Y8 Q9 H10 K11 E14 V15 E16 D17 V18 V19 M20 R24 S25 I26 A27 E28 M29 G30 A31 Y32 E37 Y38 N39 N40 I41 E42 G43 M44 I45 L46 L47 S48 E49 L50 S57 K60 L61 I62 R63 I64 G65 R66 N67 E68 C69 V70 I73 R74

V75 D76 K77 E78 K79 G80 L84 R87 R88 V89 S90 P91 E92 E93 A94 I95 K96 C97 E98 D99 E116 V117 L118 E119 Y120 T121 K122 D123 D138 D139 K142 A151 H154 A155 V156 S157 D158 P159 S160 I161 L162 D163 S164 L165 D166 L167 D170 R181 R182 L183 T184

P185 Q186 A187 V188 K189 I190 R191 A192 D193 I194 E195 V196 A197 C198 Y199 G200 Y201 E202 G203 I204 D205 A206 V207 K208 E209 A210 L211 R212 A213 G214 L215 N216 C217 S218 T219 E220 N221 M222 P223 I224 K225 I226 N227 L228 I229 A230 P231 P232 R233 Y234 V235 M236 T237 T238 T239 T240 L241 E242 R243 T244

E245 G246 L247 S248 V249 L250 S251 Q252 Q252 A253 M254 A255 V256 I257 K258 E259 K260 I261 E262 E263 K264 R265 G266 V267 F268 N269 V270 Q271 M272 E273 P274 K275 V276 V277 T278 D279 T280 D281 E282 T283 E284 L285 A286 R287 Q288 M289 E290 R291 L292 E293 R294 E295 N296 A297 E298 VAL ASP GLY ASP ASP

ALA GLU GLU MET GLU ALA LYS ALA GLU ASP

• Molecule 48: Eukaryotic translation initiation factor 2 subunit 3

Chain t:

96%

96%

M1 A2 G3 G4 E5 A6 G7 V8 T9 L10 G11 Q12 P13 H14 L15 S16 R17 Q18 D19 L20 T21 T22 L23 D24 V25 T26 K27 L28 T29 P30 L31 S32 H33 E34 V35 I36 S37 R38 Q39 A40 T41 I42 N43 I44 G45 T46 I47 G48 H49 V50 A51 H52 G53 K54 S55 T56 V57 V58 K59 A60

I61 S62 G63 VAL HIS THR VAL ARG PHE LYS ASN GLU LEU GLU ARG ASN ILE THR ILE LYS L81 G82 Y83 A84 N85 A86 K87 I88 Y89 K90 L91 D92 D93 P94 S95 C96 P97 R98 P99 E100 C101 Y102 R103 S104 C105 G106 S107 S108 T109 P110 D111 E112 F113 P114 T115 D116 I117 P118 G119 T120

K121 G122 N123 F124 K125 L126 V127 R128 H129 V130 S131 F132 V133 D134 C135 P136 G137 H138 D139 I140 L141 M142 A143 T144 M145 L146 N147 G148 A149 A150 V151 M152 D153 A154 A155 L156 L157 L158 I159 A160 G161 N162 E163 S164 C165 P166 Q167 P168 Q169 T170 S171 E172 H173 L174 A175 A176 I177 E178 I179 M180

K181 L182 K183 H184 I185 L186 I187 L188 Q189 N190 K191 I192 D193 L194 V195 K196 E197 S198 Q199 A200 K201 E202 Q203 Y204 E205 Q206 I207 L208 A209 F210 V211 Q212 G213 T214 V215 A216 E217 G218 A219 P220 I221 I222 P223 I224 S225 A226 Q227 L228 K229 Y230 N231 I232 E233 V234 V235 C236 E237 Y238 I239 V240

K241 K242 I243 P244 V245 P246 P247 R248 D249 F250 T251 S252 E253 P254 R255 L256 I257 V258 I259 R260 S261 F262 D263 V264 N265 K266 P267 G268 C269 E270 V271 D272 D273 L274 K275 Q276 G277 V278 A279 G280 G281 S282 I283 L284 K285 G286 V287 L288 K289 V290 G291 Q292 E293 I294 E295 V296 R297 P298 G299 I300

V301 S302 K303 D304 S305 E306 G307 K308 L309 M310 C311 K312 P313 I314 F315 S316 K317 I318 V319 S320 L321 F322 A323 E324 H325 N326 D327 L328 Q329 Y330 A331 A332 P333 G334 G335 L336 I337 G338 V339 G340 T341 K342 I343 D344 P345 T346 L347 C348 R349 A350 D351 R352 M353 V354 G355 Q356 V357 L358 G359 A360

V361 G362 A363 L364 P365 G366 I367 F368 T369 E370 L371 E372 I373 S374 Y375 F376 L377 L378 R379 R380 L381 L382 G383 V384 R385 T386 E387 G388 D389 K390 K391 A392 A393 K394 V395 Q396 K397 L398 S399 K400 N401 E402 V403 L404 M405 V406 N407 I408 G409 S410 L411 S412 T413 G414 G415 R416 V417 S418 A419 V420

K421 A422 D423 L424 G425 K426 I427 V428 L429 T430 N431 P432 V433 C434 T435 E436 V437 G438 E439 K440 I441 A442 L443 S444 R445 R446 V447 E448 K449 H450 W451 R452 L453 I454 G455 W456 G457 Q458 I459 R460 R461 G462 V463 T464 I465 K466 P467 T468 V469 D470 D471 D472

• Molecule 49: Eukaryotic translation initiation factor 3 subunit A

• Molecule 50: Eukaryotic translation initiation factor 3 subunit E

22%

Chain v:　　90%　　　　9%

MET ALA GLU TYR ASP LEU THR THR ARG ILE ALA HIS PHE LEU ASP ARG HIS L18 V19 F20 P21 F25 I31 E36 Y58 K59 N60 I66 T88 E89 P90 I91 V92 K93 E96 A118 D119 R124 Q125 E126 Y127 T130 F154 P159 A160 T161 D162 R163

T195 N198 N199 S200 V201 S202 S203 S218 N224 N231 L235 Y242 A245 I246 Q247 T248 M249 C250 A260 K265 D266 V267 R270 R271 Q272 V273 L277 Q283 Y288 K289 E294 N302 F303 D304 F305 D306 G307 A308 Q309 K310 R313 E314 C315

E316 S317 D322 V326 A327 E330 R337 L338 F339 I351 S352 I353 N354 M355 L356 A357 D358 K359 L360 N361 M362 E366 A367 E368 R369 N373 A378 R379 L380 D381 A382 S386 K387 L388 N395 N396 A397 V398 S399 P400 E406 K407 T408 K409 S410 L411 R414 S415

Q416 M417 L418 A419 I422 GLU LYS LYS LEU ASN GLN ASN SER ARG SER GLU ALA PRO ASN TRP ALA THR GLN ASP SER GLY PHE TYR

• Molecule 51: Initiator Met-tRNA-i

Chain w:　　56%　　　　39%　　　5%

A1 A6 G7 U8 G12 C13 C16 G18 G19 A20 A21 G22 C23 C27 U28 C34 A35 A38 G43 G46 U47 C48 G52 C56 A59 A60 C61 C62 A63 C68 U69 G70 C71 U72 A73 C74 C75 A76

• Molecule 52: Eukaryotic translation initiation factor 3 subunit D

14%

Chain x:　　77%　　　　23%

MET ALA LYS PHE MET THR PRO VAL ILE GLN ASP ASN PRO SER GLY TRP GLY PRO C19 A20 V21 P22 R26 D37 A48 Y59 SER SER GLN PHE GLY GLY GLY S67 Q81 D84 T85 A86 R87 T88 GLN LYS THR ALA TYR GLN ARG ASN ARG MET ARG PHE ALA GLN

ARG ASN LEU ARG ASP LYS ASP ARG ARG ASN MET LEU GLN PHE ASN LEU GLN ILE LEU PRO LYS SER ALA LYS GLN LYS GLU GLU ARG ILE LEU LEU GLN LYS LYS PHE GLN LYS LYS PHE GLY VAL ARG GLN LYS TRP ASP GLN LYS SER GLN GLN LYS PRO ARG ASP ASP SER SER VAL

GLU VAL ARG SER ASP W168 K171 M174 M180 K181 M182 L185 E186 V187 S188 E189 P190 Q191 D192 I193 E194 A198 R212 R222 H225 P233 A239 K240 T241 Q242 G243 D249 A250 Q273 S274 K275 R281 D282 D285 F286 N296 E297 D301 E302

G303 N304 N307 R310 K332 P338 D347 M348 D349 K350 N351 R362 W363 K364 L365 G366 D367 D368 G383 A384 N385 G386 K458 C498 L501 E502 E503 G504 K505 Y506 L507 I508 T526 F527 SER SER ASP GLU ASP GLU GLU GLU GLU GLU GLU GLU GLU

GLU GLU GLU GLU GLU THR

• Molecule 53: Eukaryotic translation initiation factor 3 subunit C

6%

Chain y:　　58%　　　41%

MET SER ARG PHE PHE THR THR GLY SER ASP SER GLU GLU SER GLU SER SER LEU SER GLY GLU GLU LEU VAL THR LYS PRO VAL GLY GLY ASN TYR GLY LYS PRO LEU LEU LEU SER GLU ASP GLU ASP ASP THR LYS ARG VAL VAL ARG SER ALA LYS ASP LYS ARG PHE GLU GLU LEU

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	46318	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	45	Depositor
Minimum defocus (nm)	200	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	22.337	Depositor
Minimum map value	-6.543	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3	Depositor
Map size (Å)	417.74402, 417.74402, 417.74402	wwPDB
Map dimensions	432, 432, 432	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.96700007, 0.96700007, 0.96700007	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MA6, OMG, 6MZ, OMC, UR3, A2M, ZN, NA, PSU, 5MC, MG, GTP, OMU, 5MU, JMH, B8N

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	0	0.31	0/5002	0.62	2/6743 (0.0%)
2	1	0.28	0/3279	0.59	0/4534
3	2	0.26	0/1491	0.49	0/2068
4	3	0.24	0/1055	0.37	0/1469
5	4	0.25	0/1269	0.41	0/1762
6	5	0.28	0/4458	0.59	3/6027 (0.0%)
7	6	0.29	0/2212	0.58	2/3034 (0.1%)
8	7	0.44	4/1365 (0.3%)	0.91	3/2124 (0.1%)
9	8	0.25	0/1572	0.43	0/2187
10	9	0.32	0/231	0.82	0/294
11	A	0.40	0/41130	1.00	147/64100 (0.2%)
12	B	0.30	0/1186	0.57	0/1585
13	C	0.30	0/2077	0.64	1/2796 (0.0%)
14	D	0.30	0/1502	0.65	0/2008
15	E	0.31	0/1105	0.62	0/1476
16	F	0.30	0/459	0.65	0/607
17	G	0.31	0/1451	0.71	3/1942 (0.2%)
18	H	0.31	0/644	0.61	0/864
19	I	0.29	0/1232	0.61	1/1656 (0.1%)
20	J	0.31	0/1051	0.65	1/1406 (0.1%)
21	K	0.31	0/623	0.66	0/833
22	L	0.33	0/1743	0.65	2/2354 (0.1%)
23	M	0.35	0/1078	0.72	1/1447 (0.1%)
24	N	0.32	0/1670	0.66	1/2271 (0.0%)
25	O	0.30	0/1742	0.62	0/2330
26	P	0.36	0/1010	0.76	1/1353 (0.1%)
27	Q	0.31	0/805	0.68	1/1079 (0.1%)
28	R	0.28	0/1654	0.58	0/2203
29	S	0.28	0/1885	0.62	1/2510 (0.0%)
30	T	0.36	0/1032	0.67	0/1371
31	V	0.30	0/1516	0.63	0/2037
32	Y	0.31	0/1142	0.67	1/1528 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	Z	0.31	0/1793	0.61	1/2414 (0.0%)
34	a	0.31	0/859	0.61	0/1159
35	b	0.33	0/1094	0.71	2/1464 (0.1%)
36	c	0.29	0/2493	0.60	0/3394
37	d	0.29	0/1123	0.62	1/1504 (0.1%)
38	e	0.41	0/657	0.62	0/878
39	f	0.30	0/1245	0.70	2/1665 (0.1%)
40	h	0.32	0/827	0.72	0/1110
41	i	0.33	0/429	0.63	0/568
42	k	0.43	0/566	0.81	1/753 (0.1%)
43	m	0.33	0/960	0.70	1/1286 (0.1%)
44	n	0.30	0/508	0.73	0/680
45	o	0.29	0/628	0.66	0/846
46	q	0.30	0/965	0.64	0/1282
47	r	0.31	0/2167	0.63	3/2943 (0.1%)
48	t	0.29	0/3494	0.64	1/4726 (0.0%)
49	u	0.31	0/5475	0.68	6/7432 (0.1%)
50	v	0.31	0/2778	0.67	3/3797 (0.1%)
51	w	0.42	0/1795	1.18	11/2798 (0.4%)
52	x	0.27	0/2885	0.58	0/3940
53	y	0.32	0/4436	0.70	7/5989 (0.1%)
All	All	0.34	4/126848 (0.0%)	0.80	210/180626 (0.1%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	7	-34	C	C1'-N1	5.96	1.57	1.48
8	7	-25	C	C1'-N1	5.67	1.57	1.48
8	7	-31	C	C1'-N1	5.44	1.56	1.48
8	7	-22	C	C1'-N1	5.34	1.56	1.48

The worst 5 of 210 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	501	C	C2-N1-C1'	12.16	132.17	118.80
11	A	501	C	N1-C2-O2	11.96	126.07	118.90
11	A	882	U	N1-C2-O2	10.08	129.85	122.80
11	A	537	C	N3-C2-O2	-9.94	114.94	121.90
11	A	1453	C	N1-C2-O2	9.93	124.86	118.90

There are no chirality outliers.

There are no planarity outliers.

5.2　Too-close contacts ⓘ

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

5.3　Torsion angles ⓘ

5.3.1　Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	619/1220 (51%)	587 (95%)	32 (5%)	0	100	100
2	1	584/814 (72%)	539 (92%)	45 (8%)	0	100	100
3	2	300/325 (92%)	291 (97%)	9 (3%)	0	100	100
4	3	209/218 (96%)	202 (97%)	7 (3%)	0	100	100
5	4	251/357 (70%)	238 (95%)	13 (5%)	0	100	100
6	5	518/564 (92%)	501 (97%)	17 (3%)	0	100	100
7	6	360/374 (96%)	338 (94%)	22 (6%)	0	100	100
9	8	313/352 (89%)	290 (93%)	23 (7%)	0	100	100
10	9	22/25 (88%)	22 (100%)	0	0	100	100
12	B	138/158 (87%)	135 (98%)	3 (2%)	0	100	100
13	C	254/263 (97%)	248 (98%)	6 (2%)	0	100	100
14	D	175/194 (90%)	168 (96%)	7 (4%)	0	100	100
15	E	138/143 (96%)	135 (98%)	3 (2%)	0	100	100
16	F	56/133 (42%)	47 (84%)	9 (16%)	0	100	100
17	G	171/194 (88%)	164 (96%)	7 (4%)	0	100	100
18	H	79/84 (94%)	75 (95%)	4 (5%)	0	100	100
19	I	148/151 (98%)	144 (97%)	4 (3%)	0	100	100
20	J	127/130 (98%)	124 (98%)	3 (2%)	0	100	100
21	K	79/83 (95%)	75 (95%)	4 (5%)	0	100	100
22	L	218/293 (74%)	210 (96%)	8 (4%)	0	100	100
23	M	129/135 (96%)	123 (95%)	6 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
24	N	205/295 (70%)	197 (96%)	8 (4%)	0	100	100
25	O	209/264 (79%)	203 (97%)	6 (3%)	0	100	100
26	P	131/151 (87%)	123 (94%)	8 (6%)	0	100	100
27	Q	97/115 (84%)	96 (99%)	1 (1%)	0	100	100
28	R	194/208 (93%)	190 (98%)	4 (2%)	0	100	100
29	S	228/249 (92%)	221 (97%)	7 (3%)	0	100	100
30	T	123/133 (92%)	123 (100%)	0	0	100	100
31	V	187/204 (92%)	178 (95%)	9 (5%)	0	100	100
32	Y	139/146 (95%)	132 (95%)	7 (5%)	0	100	100
33	Z	225/243 (93%)	222 (99%)	3 (1%)	0	100	100
34	a	97/165 (59%)	94 (97%)	3 (3%)	0	100	100
35	b	129/145 (89%)	122 (95%)	7 (5%)	0	100	100
36	c	311/317 (98%)	295 (95%)	16 (5%)	0	100	100
37	d	140/145 (97%)	134 (96%)	6 (4%)	0	100	100
38	e	79/125 (63%)	73 (92%)	6 (8%)	0	100	100
39	f	147/152 (97%)	138 (94%)	9 (6%)	0	100	100
40	h	101/119 (85%)	92 (91%)	9 (9%)	0	100	100
41	i	48/56 (86%)	47 (98%)	1 (2%)	0	100	100
42	k	66/156 (42%)	61 (92%)	5 (8%)	0	100	100
43	m	120/132 (91%)	114 (95%)	6 (5%)	0	100	100
44	n	62/69 (90%)	57 (92%)	5 (8%)	0	100	100
45	o	75/320 (23%)	72 (96%)	3 (4%)	0	100	100
46	q	116/144 (81%)	111 (96%)	5 (4%)	0	100	100
47	r	294/315 (93%)	275 (94%)	19 (6%)	0	100	100
48	t	451/472 (96%)	439 (97%)	12 (3%)	0	100	100
49	u	705/1382 (51%)	656 (93%)	49 (7%)	0	100	100
50	v	403/445 (91%)	369 (92%)	34 (8%)	0	100	100
52	x	417/548 (76%)	394 (94%)	23 (6%)	0	100	100
53	y	539/913 (59%)	514 (95%)	25 (5%)	0	100	100
All	All	10926/14338 (76%)	10398 (95%)	528 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	0	546/1081 (50%)	545 (100%)	1 (0%)	92	97
2	1	97/702 (14%)	97 (100%)	0	100	100
6	5	477/515 (93%)	477 (100%)	0	100	100
7	6	112/335 (33%)	112 (100%)	0	100	100
9	8	1/310 (0%)	1 (100%)	0	100	100
10	9	23/24 (96%)	23 (100%)	0	100	100
12	B	129/142 (91%)	128 (99%)	1 (1%)	79	90
13	C	220/225 (98%)	220 (100%)	0	100	100
14	D	158/168 (94%)	158 (100%)	0	100	100
15	E	112/115 (97%)	112 (100%)	0	100	100
16	F	46/104 (44%)	46 (100%)	0	100	100
17	G	159/174 (91%)	159 (100%)	0	100	100
18	H	73/76 (96%)	73 (100%)	0	100	100
19	I	130/131 (99%)	130 (100%)	0	100	100
20	J	112/113 (99%)	112 (100%)	0	100	100
21	K	65/67 (97%)	65 (100%)	0	100	100
22	L	186/225 (83%)	186 (100%)	0	100	100
23	M	119/122 (98%)	119 (100%)	0	100	100
24	N	173/243 (71%)	173 (100%)	0	100	100
25	O	192/231 (83%)	192 (100%)	0	100	100
26	P	104/119 (87%)	104 (100%)	0	100	100
27	Q	86/98 (88%)	86 (100%)	0	100	100
28	R	172/180 (96%)	172 (100%)	0	100	100
29	S	200/218 (92%)	199 (100%)	1 (0%)	86	93
30	T	107/115 (93%)	106 (99%)	1 (1%)	75	89
31	V	159/170 (94%)	159 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
32	Y	117/121 (97%)	117 (100%)	0	100	100
33	Z	190/202 (94%)	190 (100%)	0	100	100
34	a	90/136 (66%)	90 (100%)	0	100	100
35	b	117/130 (90%)	117 (100%)	0	100	100
36	c	272/275 (99%)	272 (100%)	0	100	100
37	d	112/115 (97%)	112 (100%)	0	100	100
38	e	71/103 (69%)	69 (97%)	2 (3%)	38	68
39	f	129/132 (98%)	129 (100%)	0	100	100
40	h	94/107 (88%)	94 (100%)	0	100	100
41	i	44/49 (90%)	44 (100%)	0	100	100
42	k	61/140 (44%)	59 (97%)	2 (3%)	33	64
43	m	104/108 (96%)	103 (99%)	1 (1%)	73	87
44	n	57/62 (92%)	57 (100%)	0	100	100
45	o	64/277 (23%)	64 (100%)	0	100	100
46	q	100/123 (81%)	100 (100%)	0	100	100
47	r	190/280 (68%)	190 (100%)	0	100	100
48	t	380/397 (96%)	379 (100%)	1 (0%)	91	96
49	u	528/1259 (42%)	526 (100%)	2 (0%)	89	94
50	v	206/406 (51%)	204 (99%)	2 (1%)	73	87
52	x	207/494 (42%)	207 (100%)	0	100	100
53	y	472/811 (58%)	470 (100%)	2 (0%)	89	94
All	All	7563/11730 (64%)	7547 (100%)	16 (0%)	91	97

5 of 16 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
53	y	439	ARG
50	v	407	LYS
43	m	99	LYS
50	v	310	LYS
42	k	138	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 12 such sidechains are listed below:

Mol	Chain	Res	Type
46	q	37	GLN
48	t	39	GLN
53	y	701	HIS
49	u	110	GLN
17	G	163	GLN

5.3.3   RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	A	1741/1869 (93%)	407 (23%)	13 (0%)
51	w	74/75 (98%)	31 (41%)	0
8	7	56/255 (21%)	37 (66%)	3 (5%)
All	All	1871/2199 (85%)	475 (25%)	16 (0%)

5 of 475 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
8	7	-34	C
8	7	-31	C
8	7	-30	A
8	7	-29	A
8	7	-28	C

5 of 16 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
11	A	912	C
11	A	797	C
11	A	644	OMG
11	A	731	G
11	A	541	U

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

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

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

RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
11	A2M	A	668	56,11	18,25,26	4.20	8 (44%)	18,36,39	3.79	6 (33%)
11	PSU	A	823	11	18,21,22	1.08	1 (5%)	22,30,33	1.75	4 (18%)
11	PSU	A	1081	11	18,21,22	1.03	1 (5%)	22,30,33	1.75	4 (18%)
11	PSU	A	1243	11	18,21,22	1.05	1 (5%)	22,30,33	1.79	4 (18%)
11	OMG	A	644	11	18,26,27	2.44	7 (38%)	19,38,41	2.66	10 (52%)
11	5MU	A	814	11	19,22,23	0.47	0	28,32,35	1.15	2 (7%)
11	A2M	A	484	11	18,25,26	4.21	9 (50%)	18,36,39	3.87	5 (27%)
11	UR3	A	1830	11	19,22,23	2.79	8 (42%)	26,32,35	1.51	4 (15%)
11	A2M	A	27	56,11	18,25,26	4.28	9 (50%)	18,36,39	3.78	5 (27%)
11	MA6	A	1850	11	18,26,27	1.31	2 (11%)	19,38,41	3.13	2 (10%)
11	OMG	A	683	11	18,26,27	1.09	1 (5%)	19,38,41	1.09	2 (10%)
11	OMC	A	174	56,11	19,22,23	0.56	0	26,31,34	0.78	1 (3%)
11	A2M	A	1031	11	18,25,26	4.33	8 (44%)	18,36,39	3.75	4 (22%)
11	A2M	A	1678	11	18,25,26	4.34	8 (44%)	18,36,39	3.86	5 (27%)
11	OMG	A	509	56,11	18,26,27	2.65	9 (50%)	19,38,41	2.55	9 (47%)
11	OMU	A	121	11	19,22,23	3.00	6 (31%)	26,31,34	1.71	5 (19%)
11	6MZ	A	1832	56,11	18,25,26	1.77	2 (11%)	16,36,39	2.49	5 (31%)
11	OMC	A	1703	11	19,22,23	0.57	0	26,31,34	0.66	0
11	MA6	A	1851	11	18,26,27	1.35	3 (16%)	19,38,41	3.22	2 (10%)
11	A2M	A	166	11	18,25,26	4.28	8 (44%)	18,36,39	3.74	4 (22%)
11	PSU	A	822	11	18,21,22	1.07	1 (5%)	22,30,33	1.78	5 (22%)
11	OMU	A	116	11	19,22,23	3.02	6 (31%)	26,31,34	1.64	5 (19%)
11	PSU	A	119	11	18,21,22	1.00	1 (5%)	22,30,33	1.61	4 (18%)
11	JMH	A	1219	56,11	18,22,23	2.93	5 (27%)	21,32,35	1.73	5 (23%)
11	5MC	A	1374	11	18,22,23	0.56	0	26,32,35	0.53	0
11	B8N	A	1248	11	24,29,30	3.05	6 (25%)	29,42,45	1.83	6 (20%)
11	OMC	A	517	11	19,22,23	0.55	0	26,31,34	0.65	0
11	A2M	A	159	11	18,25,26	4.34	8 (44%)	18,36,39	3.85	5 (27%)
11	PSU	A	612	11	18,21,22	0.98	1 (5%)	22,30,33	1.78	5 (22%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	A2M	A	668	56,11	-	2/5/27/28	0/3/3/3
11	PSU	A	823	11	-	0/7/25/26	0/2/2/2
11	PSU	A	1081	11	-	1/7/25/26	0/2/2/2
11	PSU	A	1243	11	-	0/7/25/26	0/2/2/2
11	OMG	A	644	11	-	4/5/27/28	0/3/3/3
11	5MU	A	814	11	-	0/7/25/26	0/2/2/2
11	A2M	A	484	11	-	1/5/27/28	0/3/3/3
11	UR3	A	1830	11	-	2/7/25/26	0/2/2/2
11	A2M	A	27	56,11	-	1/5/27/28	0/3/3/3
11	MA6	A	1850	11	-	3/7/29/30	0/3/3/3
11	OMG	A	683	11	-	3/5/27/28	0/3/3/3
11	OMC	A	174	56,11	-	0/9/27/28	0/2/2/2
11	A2M	A	1031	11	-	1/5/27/28	0/3/3/3
11	A2M	A	1678	11	-	1/5/27/28	0/3/3/3
11	OMG	A	509	56,11	-	3/5/27/28	0/3/3/3
11	OMU	A	121	11	-	0/9/27/28	0/2/2/2
11	6MZ	A	1832	56,11	-	2/5/27/28	0/3/3/3
11	OMC	A	1703	11	-	0/9/27/28	0/2/2/2
11	MA6	A	1851	11	-	4/7/29/30	0/3/3/3
11	A2M	A	166	11	-	1/5/27/28	0/3/3/3
11	PSU	A	822	11	-	2/7/25/26	0/2/2/2
11	OMU	A	116	11	-	1/9/27/28	0/2/2/2
11	PSU	A	119	11	-	0/7/25/26	0/2/2/2
11	JMH	A	1219	56,11	-	1/7/25/26	0/2/2/2
11	5MC	A	1374	11	-	0/7/25/26	0/2/2/2
11	B8N	A	1248	11	-	5/16/34/35	0/2/2/2
11	OMC	A	517	11	-	2/9/27/28	0/2/2/2
11	A2M	A	159	11	-	3/5/27/28	0/3/3/3
11	PSU	A	612	11	-	0/7/25/26	0/2/2/2

The worst 5 of 119 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	1031	A2M	C3'-C2'	-12.89	1.24	1.52
11	A	1678	A2M	C3'-C2'	-12.79	1.24	1.52
11	A	27	A2M	C3'-C2'	-12.77	1.24	1.52
11	A	159	A2M	C3'-C2'	-12.73	1.24	1.52
11	A	166	A2M	C3'-C2'	-12.70	1.24	1.52

The worst 5 of 118 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	1851	MA6	N1-C6-N6	-12.58	103.82	117.06
11	A	1850	MA6	N1-C6-N6	-12.38	104.02	117.06
11	A	159	A2M	C1'-N9-C4	10.52	145.12	126.64
11	A	484	A2M	C1'-N9-C4	10.42	144.95	126.64
11	A	1678	A2M	C1'-N9-C4	10.40	144.92	126.64

There are no chirality outliers.

5 of 43 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	A	27	A2M	C1'-C2'-O2'-CM'
11	A	116	OMU	C1'-C2'-O2'-CM2
11	A	159	A2M	C3'-C4'-C5'-O5'
11	A	159	A2M	C1'-C2'-O2'-CM'
11	A	166	A2M	C1'-C2'-O2'-CM'

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 93 ligands modelled in this entry, 92 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
54	GTP	0	2001	56,55	26,34,34	1.12	2 (7%)	32,54,54	1.75	6 (18%)

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
54	GTP	0	2001	56,55	-	2/18/38/38	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	0	2001	GTP	C5-C6	-3.91	1.39	1.47
54	0	2001	GTP	C2-N3	2.10	1.38	1.33

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
54	0	2001	GTP	PA-O3A-PB	-5.30	114.63	132.83
54	0	2001	GTP	C5-C6-N1	3.29	119.75	113.95
54	0	2001	GTP	C8-N7-C5	3.19	109.06	102.99
54	0	2001	GTP	C2-N1-C6	-2.93	119.71	125.10
54	0	2001	GTP	C3'-C2'-C1'	2.82	105.23	100.98

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
54	0	2001	GTP	PB-O3B-PG-O2G
54	0	2001	GTP	PG-O3B-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 GTP 0 2001

Bond lengths

Bond angles

Torsions

Rings
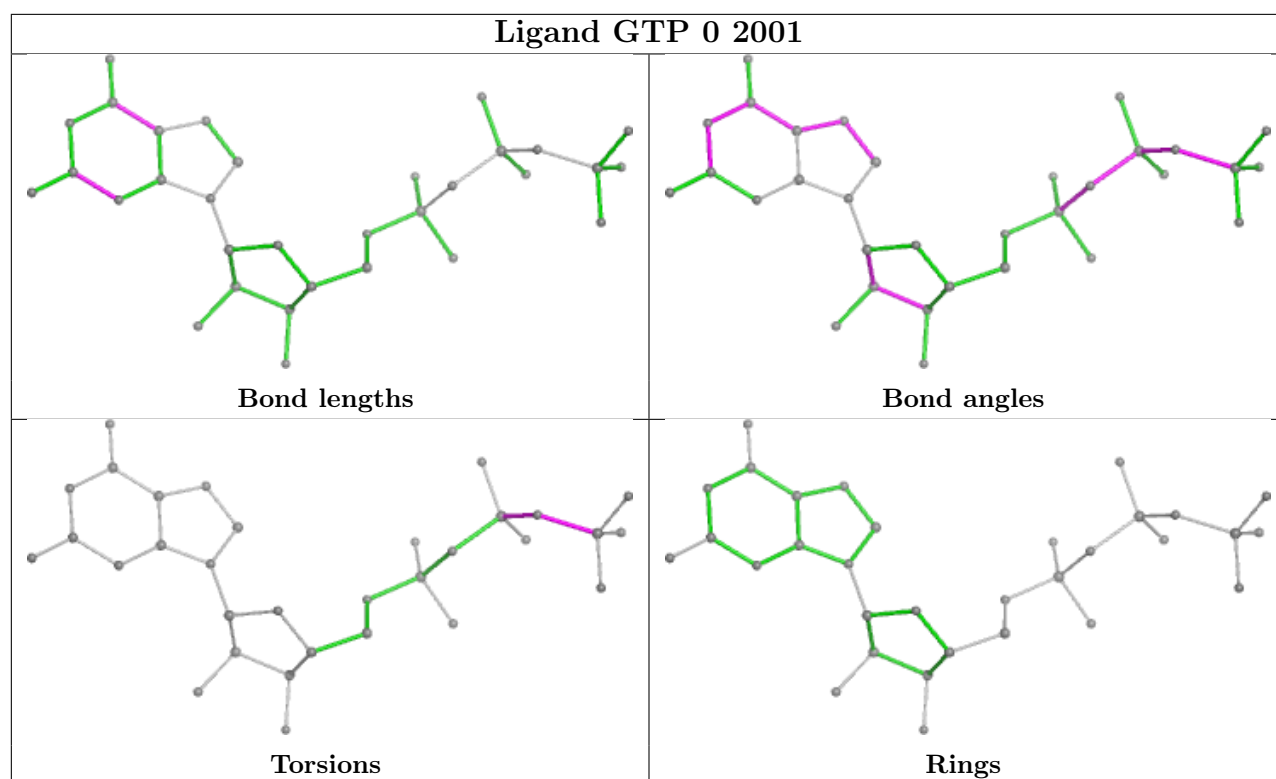
5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-17699. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections ⓘ
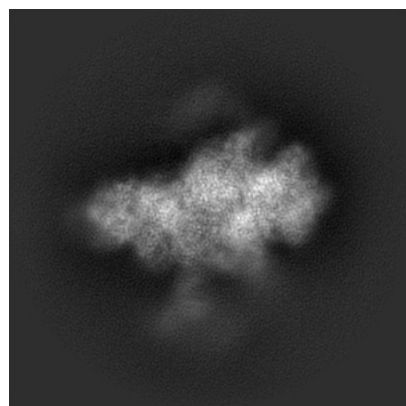
6.1.1 Primary map

X
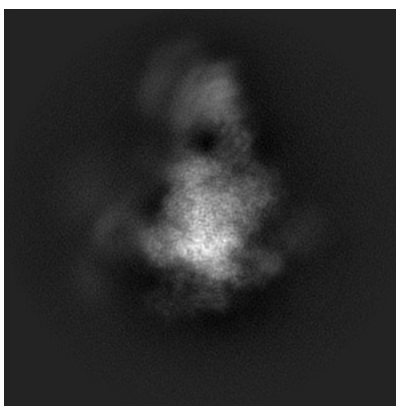
Y
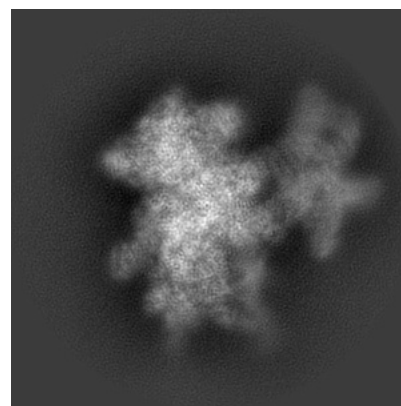
Z

6.1.2 Raw map

X

Y

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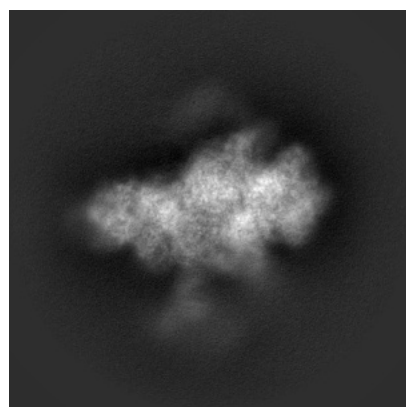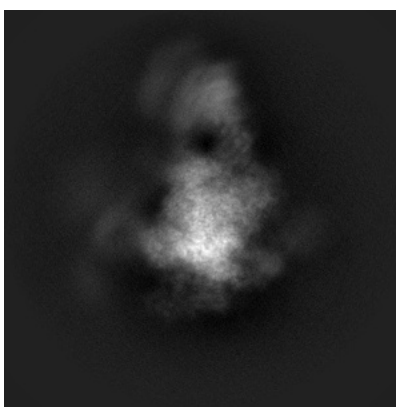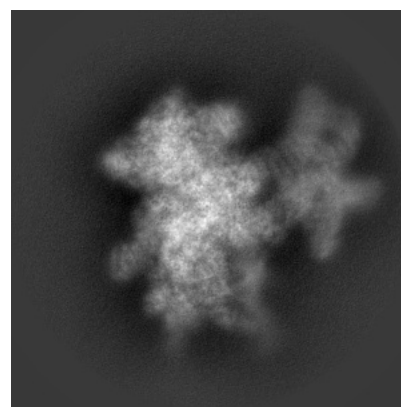
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
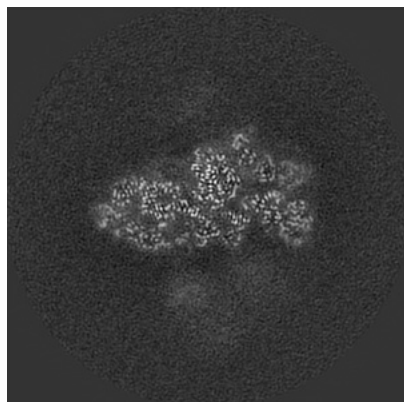
6.2.1 Primary map
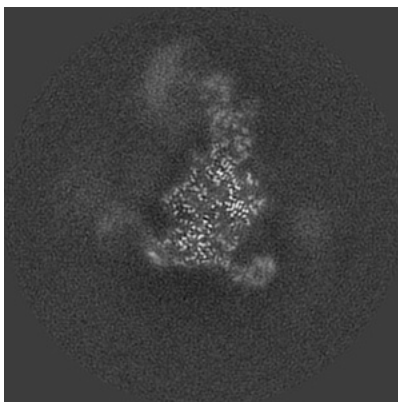
| X Index: 216 | Y Index: 216 | Z Index: 216 |
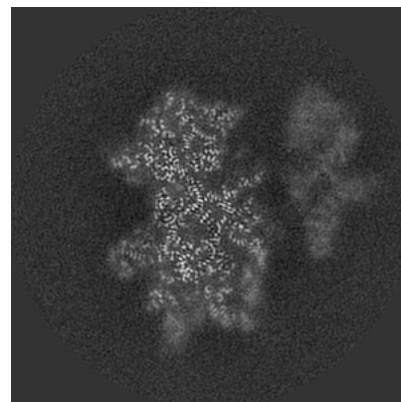
6.2.2 Raw map
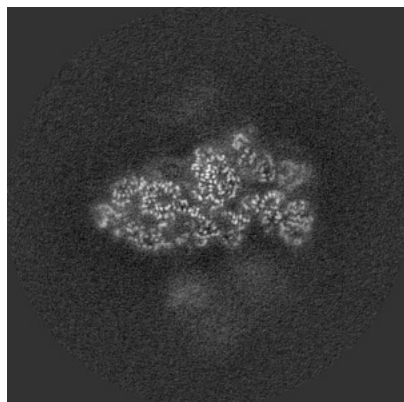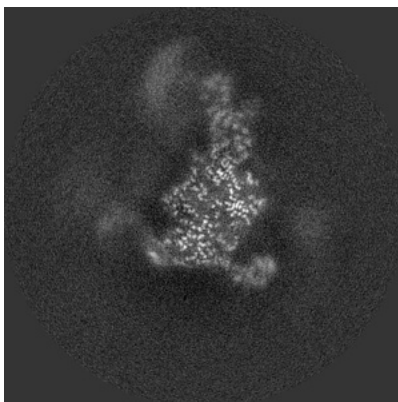
| X Index: 180 | Y Index: 180 | Z Index: 180 |
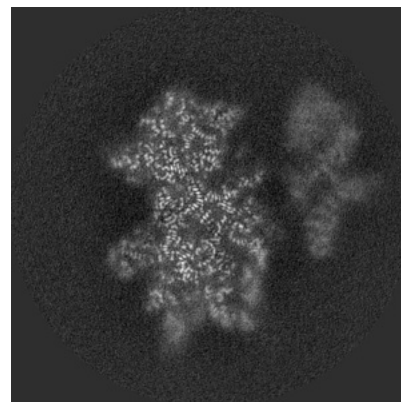
The images above show central slices of the map in three orthogonal directions.

6.3   Largest variance slices ⓘ

6.3.1   Primary map
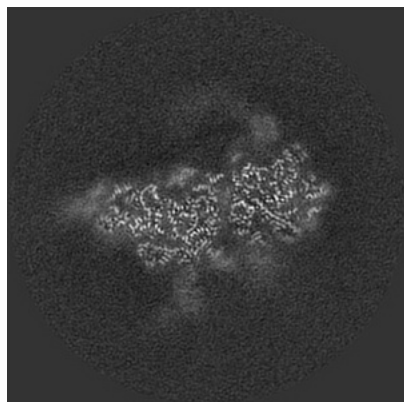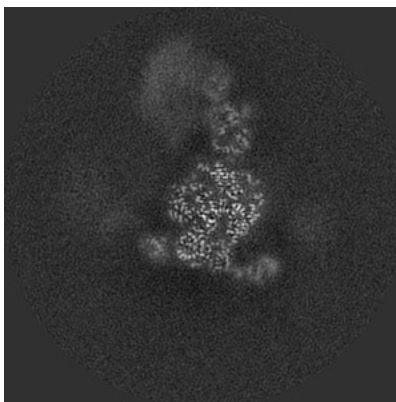
X Index: 176   Y Index: 222   Z Index: 209
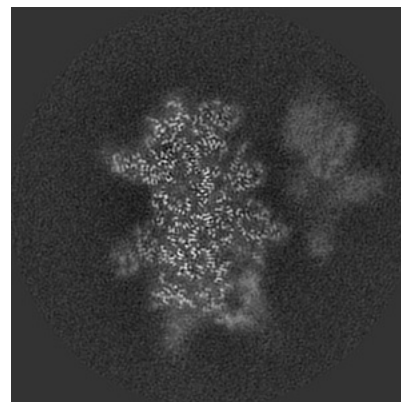
6.3.2   Raw map
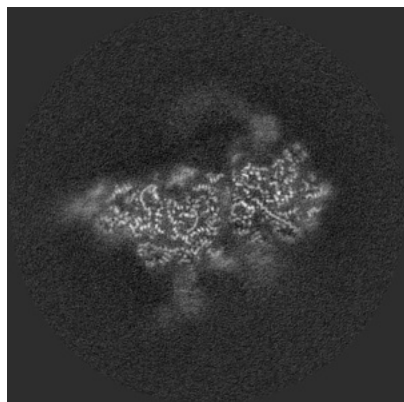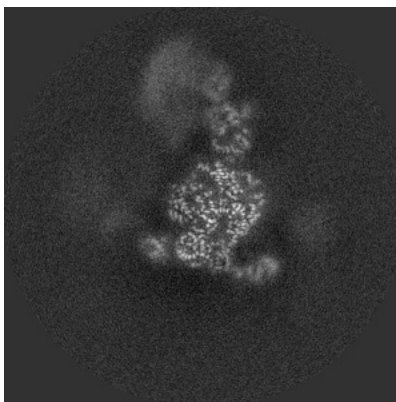
X Index: 147   Y Index: 185   Z Index: 174
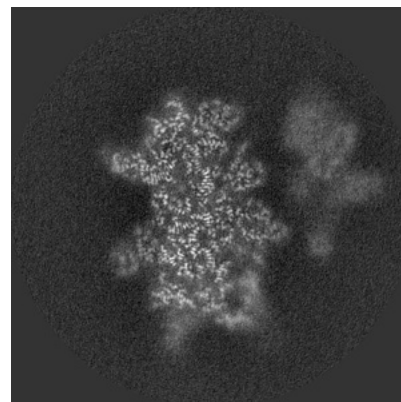
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map
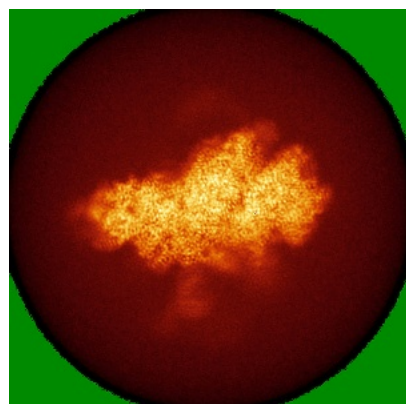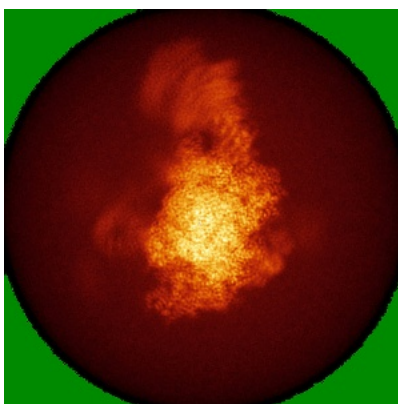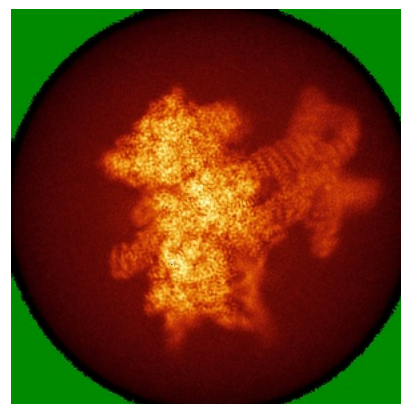
| X | Y | Z |

6.4.2 Raw map

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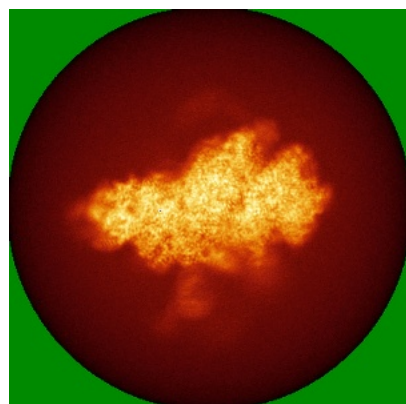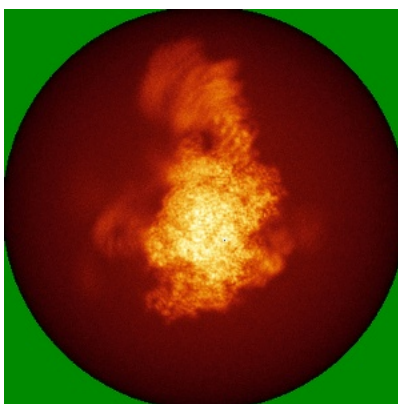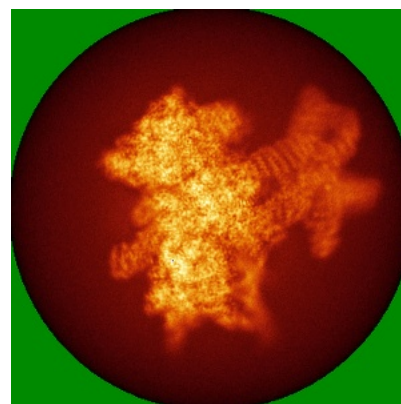
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5   Orthogonal surface views (i)

6.5.1   Primary map

| X | Y | Z |
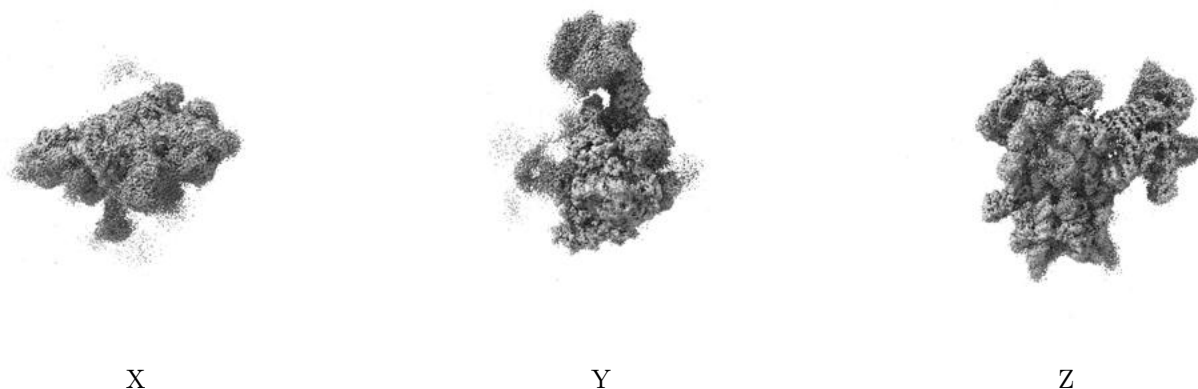
The images above show the 3D surface view of the map at the recommended contour level 3.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2   Raw map

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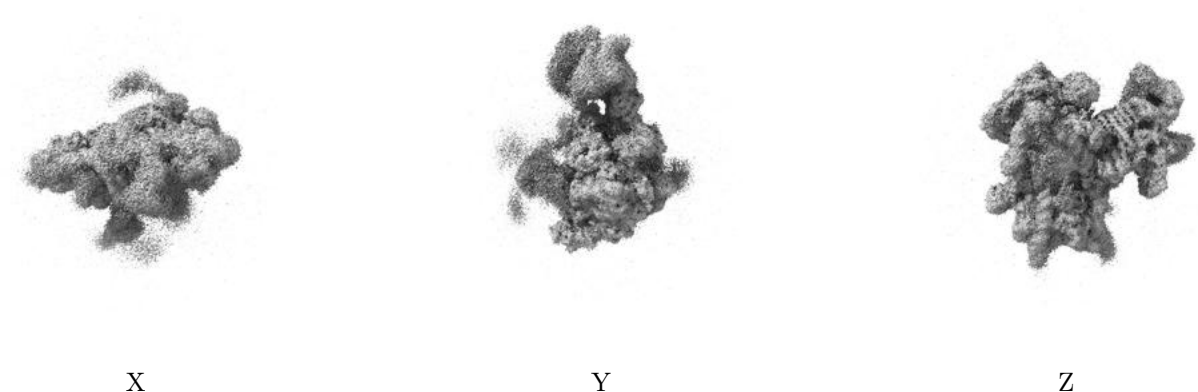
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6   Mask visualisation ⓘ

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

A mask typically either:

- Encompasses the whole structure

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

6.6.1   emd_17699_msk_1.map ⓘ
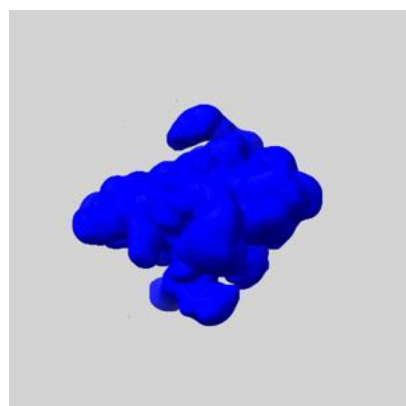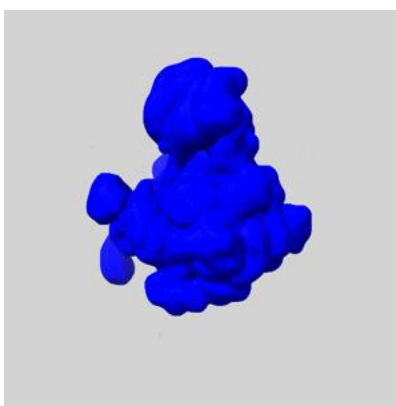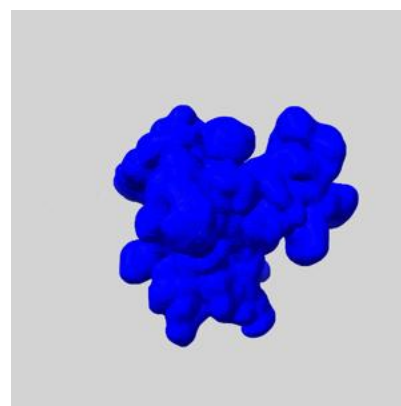
X   Y   Z

7   Map analysis (i)

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

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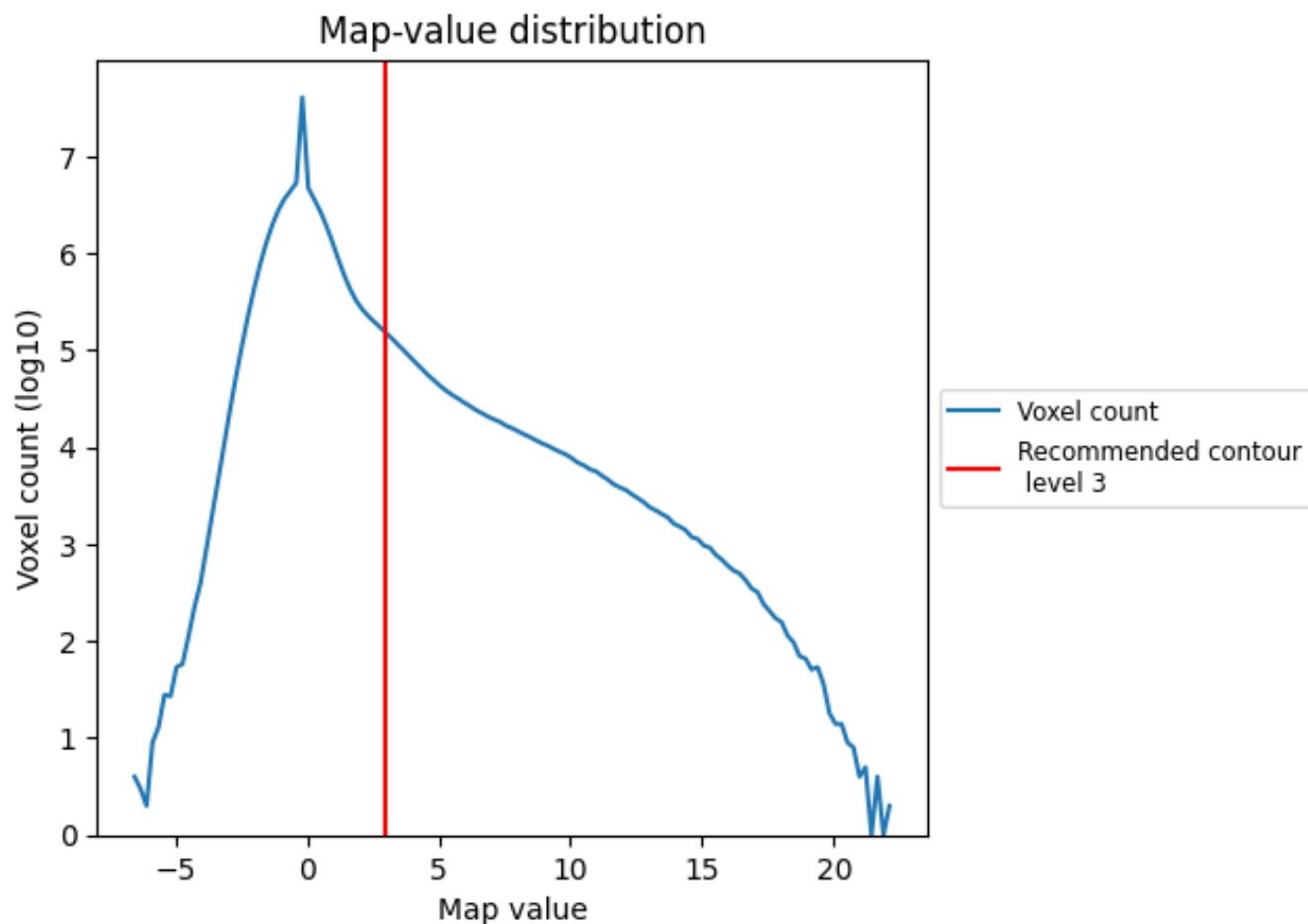
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
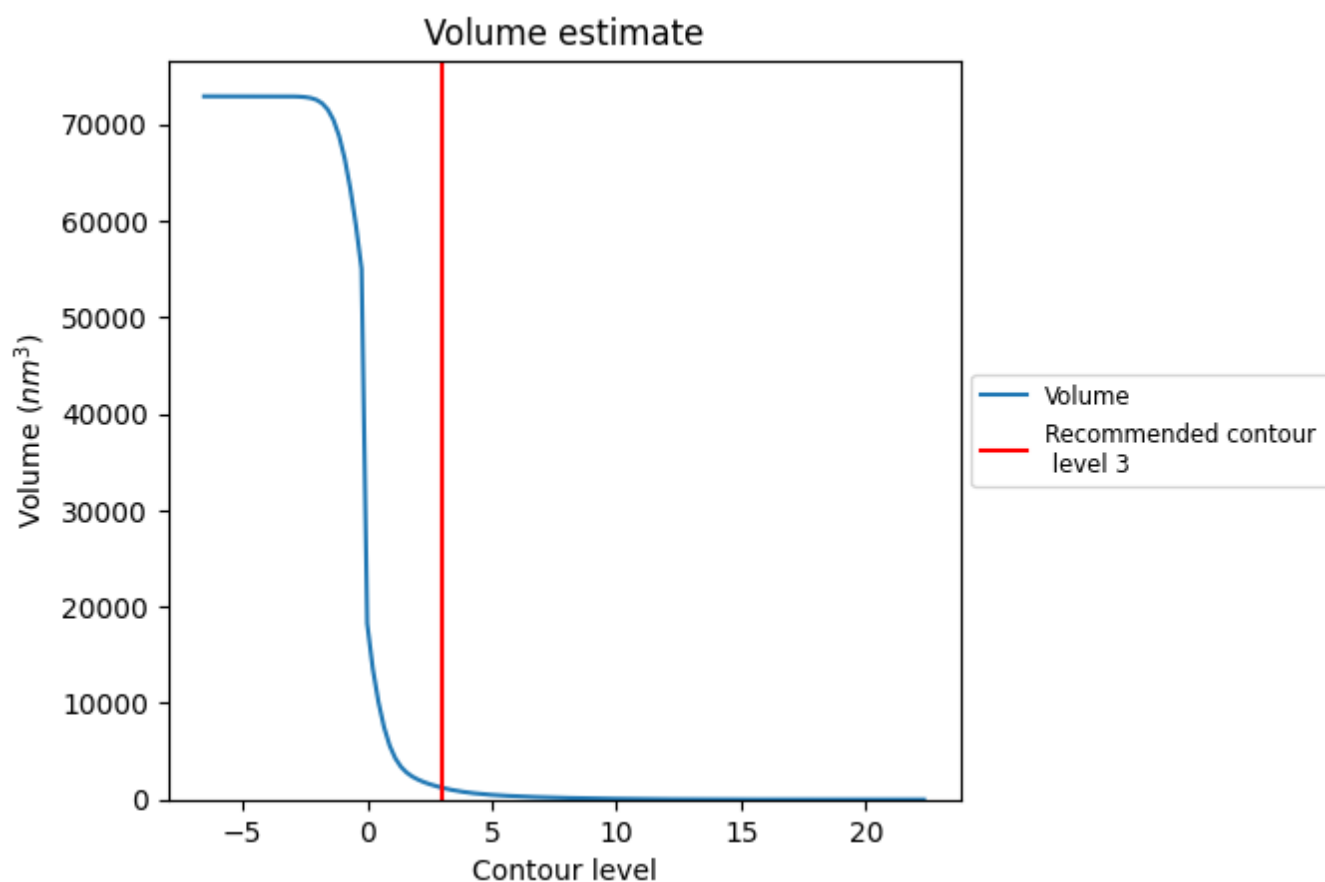
The volume at the recommended contour level is 1228 nm^3; this corresponds to an approximate mass of 1109 kDa.

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 ⓘ
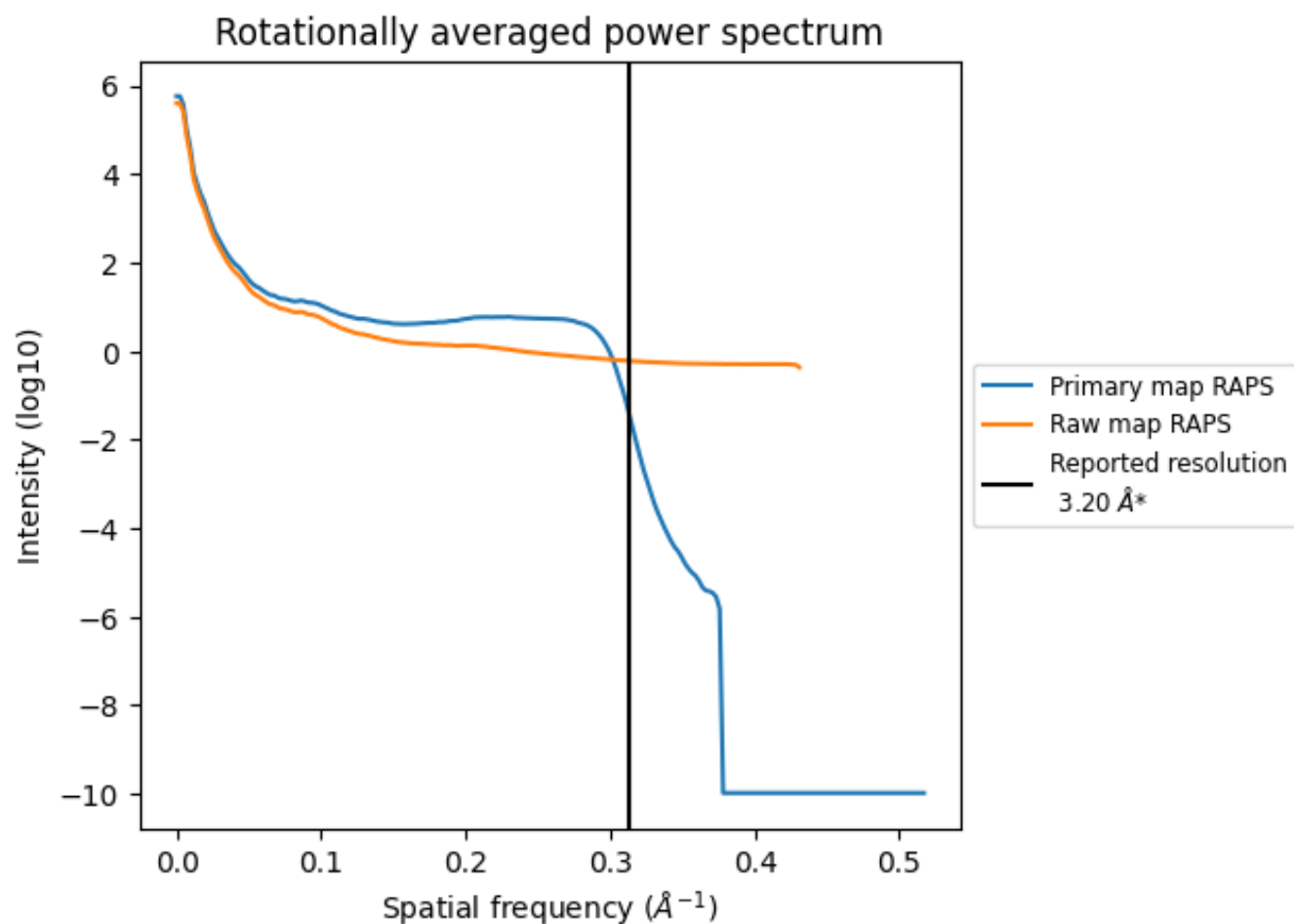
*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

8 Fourier-Shell correlation (i)

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

8.1 FSC (i)
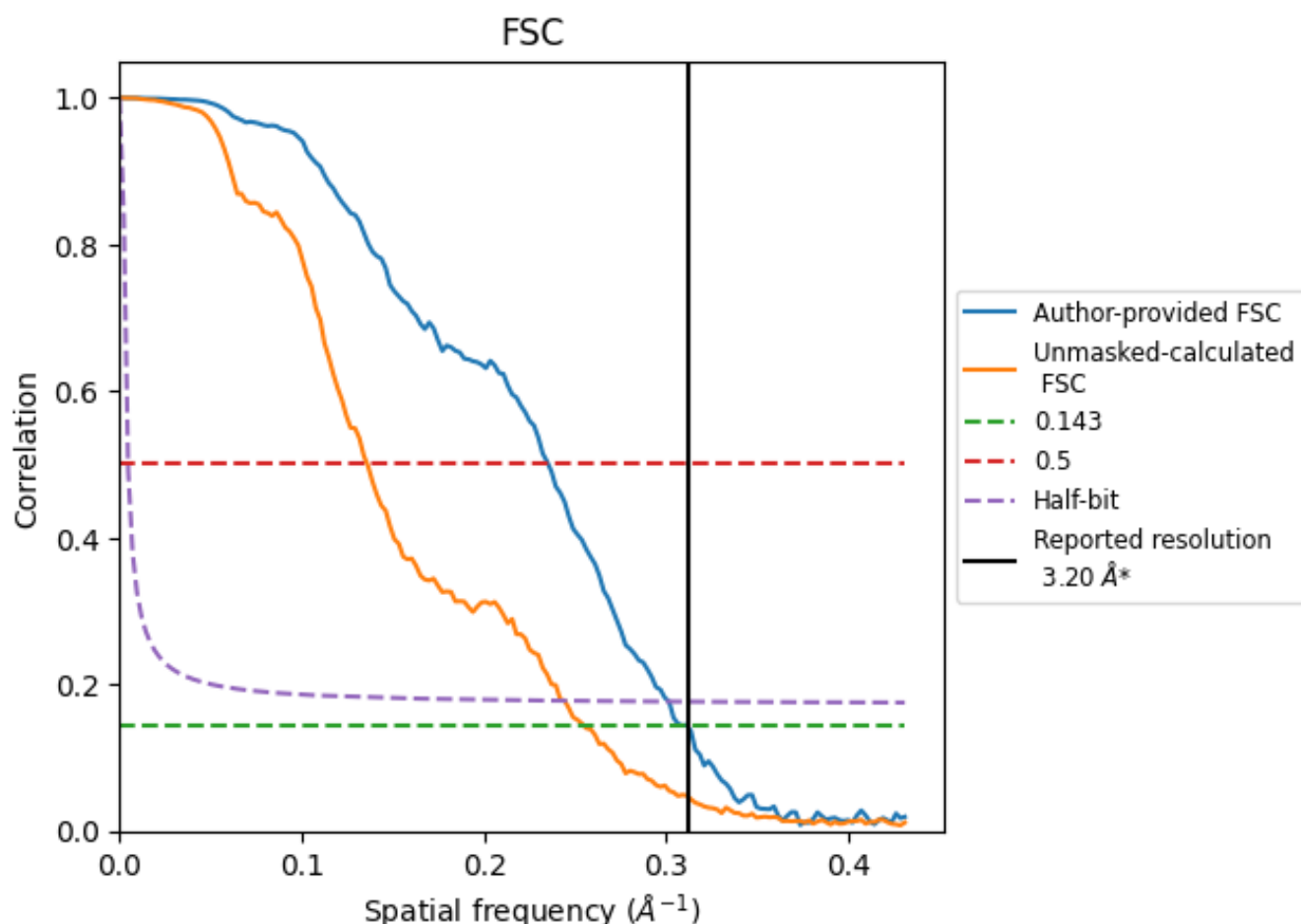
*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	3.21	4.25	3.32
Unmasked-calculated*	3.92	7.35	4.09

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.92 differs from the reported value 3.2 by more than 10 %

9   Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-17699 and PDB model 8PJ4. Per-residue inclusion information can be found in section 3 on page 14.

9.1   Map-model overlay (i)

| X | Y | Z |
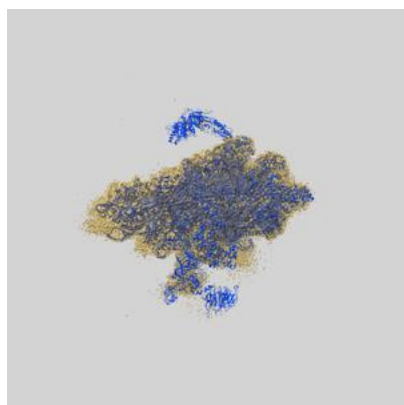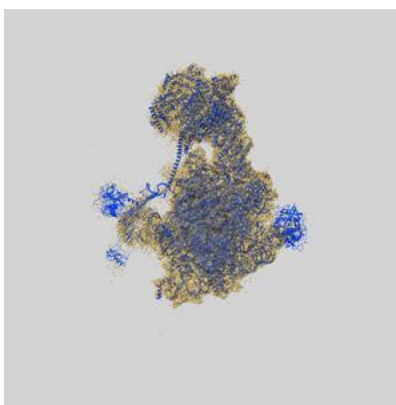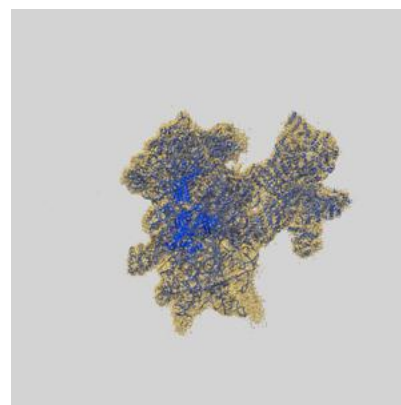
The images above show the 3D surface view of the map at the recommended contour level 3.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2   Q-score mapped to coordinate model ⓘ
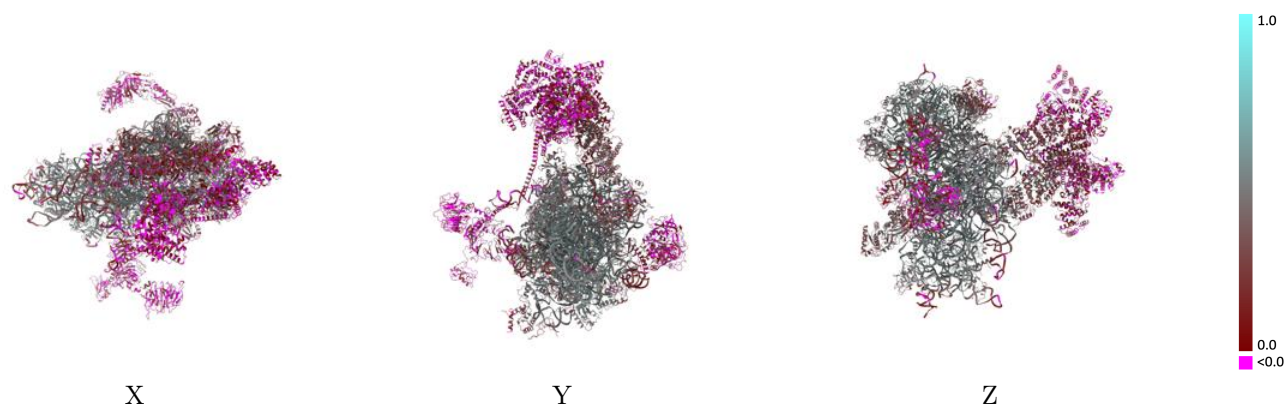
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 ⓘ
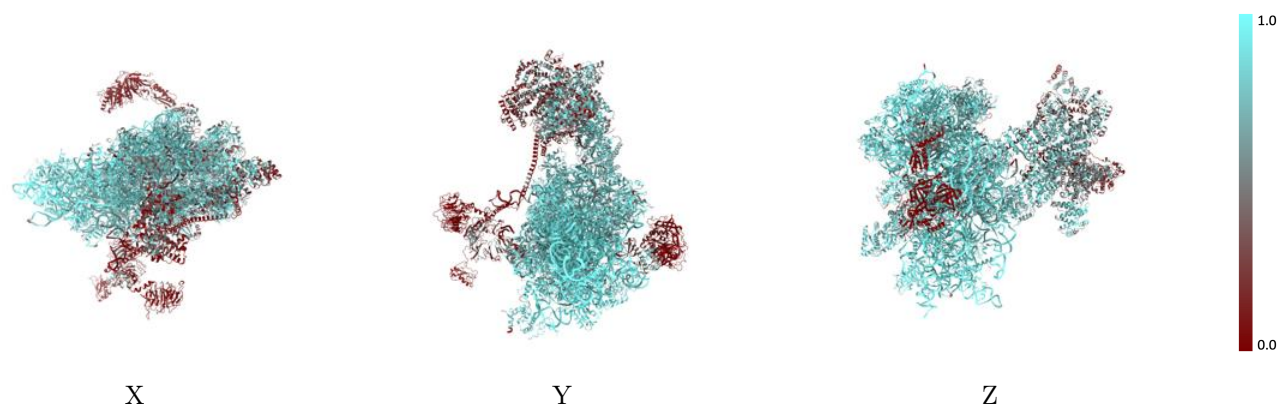
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (3).

9.4 Atom inclusion (i)
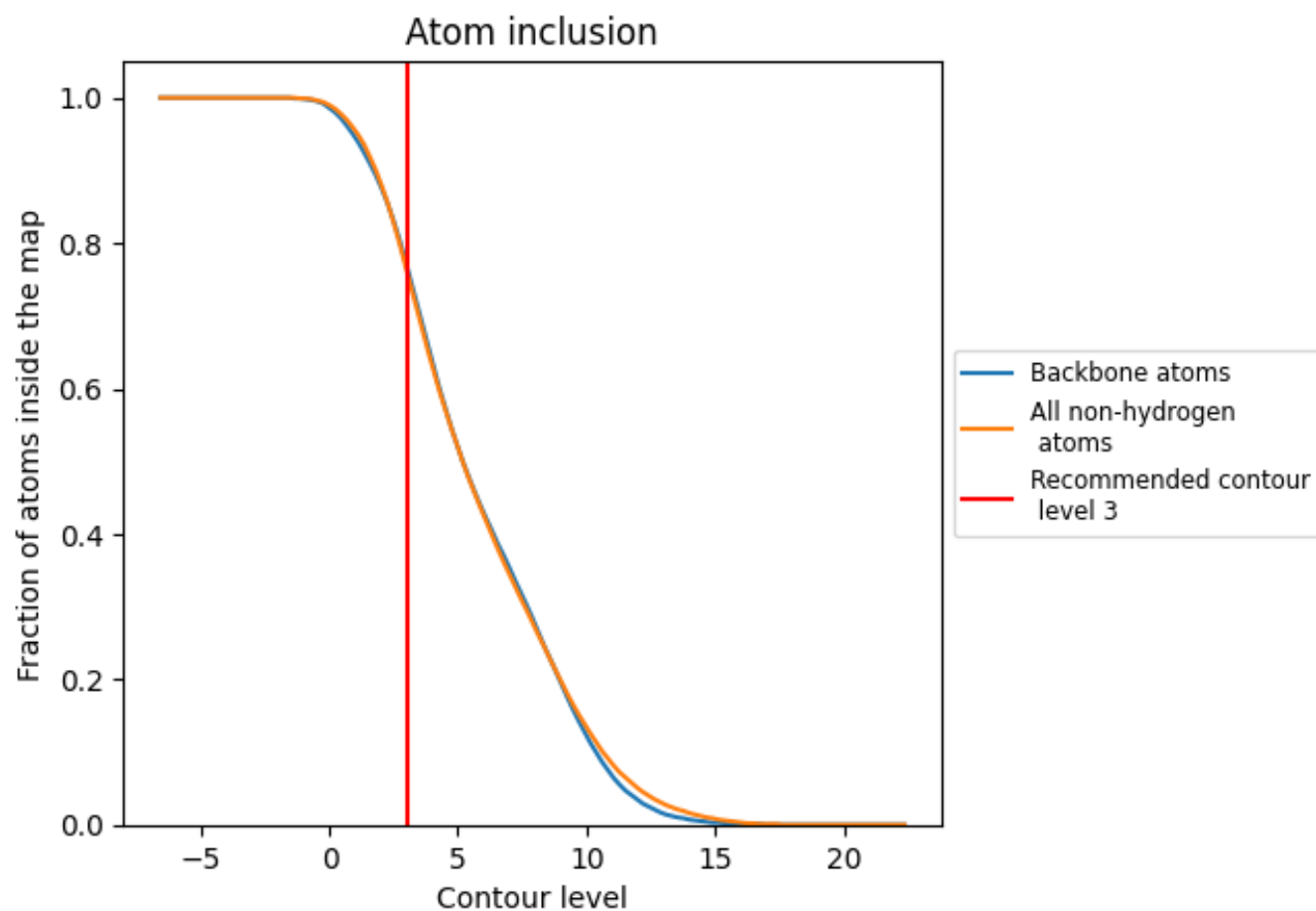
At the recommended contour level, 77% of all backbone atoms, 76% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7640	0.3610
0	0.7650	0.3440
1	0.2110	0.0910
2	0.0010	0.0010
3	0.3310	0.0280
4	0.5490	0.0800
5	0.3200	0.0380
6	0.4880	0.0730
7	0.6010	0.2300
8	0.5060	0.1010
9	0.8760	0.4570
A	0.9590	0.4670
B	0.9120	0.5040
C	0.9280	0.5060
D	0.8950	0.4980
E	0.9010	0.5150
F	0.8240	0.4430
G	0.8150	0.4210
H	0.8600	0.4650
I	0.8920	0.4920
J	0.9090	0.5130
K	0.8510	0.4850
L	0.8710	0.4990
M	0.8260	0.4620
N	0.8870	0.4920
O	0.8780	0.4770
P	0.8780	0.4810
Q	0.9260	0.5000
R	0.9320	0.4780
S	0.9140	0.4380
T	0.9100	0.4710
V	0.8800	0.4870
Y	0.9430	0.5120
Z	0.8300	0.4710
a	0.9010	0.4730

1.0

0.0
<0.0

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Chain	Atom inclusion	Q-score
b	0.9010	0.4820
c	0.8820	0.4550
d	0.9380	0.5060
e	0.8020	0.4720
f	0.8900	0.4670
h	0.8670	0.4520
i	0.9530	0.5260
k	0.8430	0.3240
m	0.7320	0.2900
n	0.7880	0.4440
o	0.5260	0.2060
q	0.7930	0.4620
r	0.3250	0.1750
t	0.0050	0.0630
u	0.6040	0.2230
v	0.6110	0.1290
w	0.9170	0.2640
x	0.6870	0.2840
y	0.7280	0.2830