wwPDB EM Validation Summary Report (i)

Nov 10, 2024 – 07:34 AM EST

PDB ID	:	6CND
EMDB ID	:	EMD-7532
Title	:	Yeast RNA polymerase III natural open complex (nOC)
Authors	:	Han, Y.; He, Y.
Deposited on	:	2018-03-08
Resolution	:	4.80 Å(reported)

This is a wwPDB EM Validation Summary 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 (i) 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 (i)) were used in the production of this report:

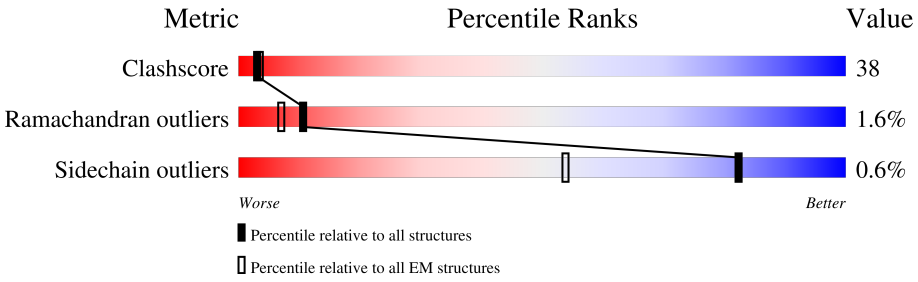
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	: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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 4.80 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	1460	9% 40% 56%
2	B	1149	5% 40% 56%
3	C	335	44% 54%
4	D	161	9% 39% 34% 26%
5	E	215	40% 59%
6	F	155	25% 27% 46%
7	G	212	13% 33% 53% 13%
8	H	146	37% 58%

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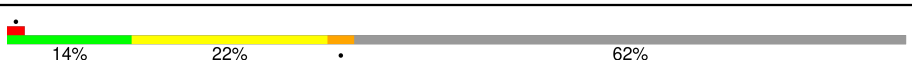
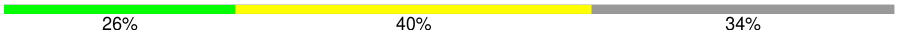
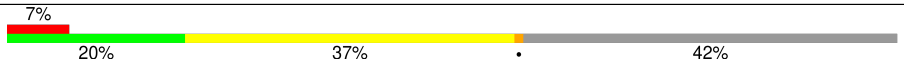
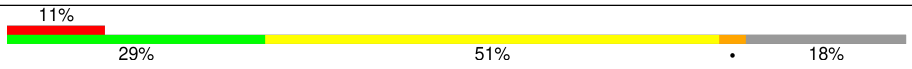
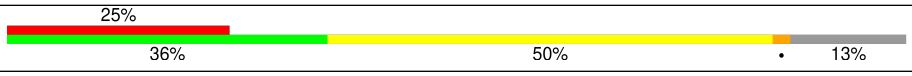
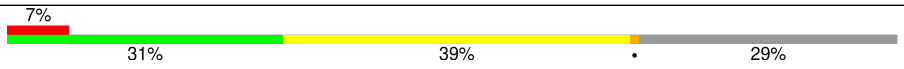
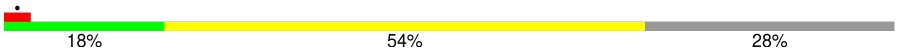
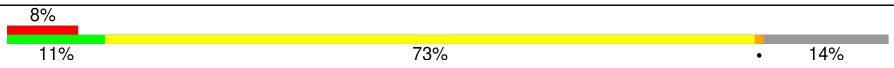
Mol	Chain	Length	Quality of chain
9	I	110	
10	J	70	
11	K	142	
12	L	70	
13	M	282	
14	N	422	
15	O	654	
16	P	317	
17	Q	251	
18	R	736	
19	S	594	
20	X	71	
21	Y	71	

2 Entry composition (i)

There are 22 unique types of molecules in this entry. The entry contains 47836 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 DNA-directed RNA polymerase III subunit RPC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1428	11159	7029	1972	2099	59	0	0

- Molecule 2 is a protein called DNA-directed RNA polymerase III subunit RPC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1114	8788	5558	1516	1654	60	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerases I and III subunit RPAC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	335	2655	1681	454	511	9	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase III subunit RPC9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	119	977	628	156	187	6	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	215	1759	1116	310	321	12	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	83	671	429	114	125	3	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase III subunit RPC8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	184	Total	C	N	O	S	0	0
			1484	972	239	267	6		

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	140	Total	C	N	O	S	0	0
			1120	703	188	224	5		

- Molecule 9 is a protein called DNA-directed RNA polymerase III subunit RPC10.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	42	Total	C	N	O	S	0	0
			321	204	47	64	6		

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	67	Total	C	N	O	S	0	0
			549	350	95	98	6		

- Molecule 11 is a protein called DNA-directed RNA polymerases I and III subunit RPAC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	101	Total	C	N	O	S	0	0
			792	496	130	161	5		

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	46	Total	C	N	O	S	0	0
			363	224	72	63	4		

- Molecule 13 is a protein called DNA-directed RNA polymerase III subunit RPC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	164	Total	C	N	O	S	0	0
			1338	857	227	253	1		

- Molecule 14 is a protein called DNA-directed RNA polymerase III subunit RPC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	110	Total	C	N	O	S	0	0
			845	536	152	154	3		

- Molecule 15 is a protein called DNA-directed RNA polymerase III subunit RPC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	539	Total	C	N	O	S	0	0
			4329	2756	741	813	19		

- Molecule 16 is a protein called DNA-directed RNA polymerase III subunit RPC6.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	277	Total	C	N	O	S	0	0
			2242	1438	368	425	11		

- Molecule 17 is a protein called DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	Q	54	Total	C	N	O	0	0
			368	238	64	66		

- Molecule 18 is a protein called Transcription factor IIIB 70 kDa subunit,TATA-box-bindin g protein,Transcription factor IIIB 70 kDa subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	522	Total	C	N	O	S	0	0
			4131	2621	733	757	20		

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	383	ALA	-	linker	UNP P29056
R	384	MET	-	linker	UNP P29056
R	385	PRO	-	linker	UNP P29056
R	386	TRP	-	linker	UNP P29056
R	567	GLY	-	linker	UNP P13393
R	568	SER	-	linker	UNP P13393
R	569	GLY	-	linker	UNP P13393
R	570	SER	-	linker	UNP P13393
R	571	GLY	-	linker	UNP P13393

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Chain	Residue	Modelled	Actual	Comment	Reference
R	572	SER	-	linker	UNP P13393
R	573	GLY	-	linker	UNP P13393
R	574	SER	-	linker	UNP P13393
R	575	GLY	-	linker	UNP P13393
R	576	SER	-	linker	UNP P13393
R	577	GLY	-	linker	UNP P13393
R	578	SER	CYS	conflict	UNP P29056

- Molecule 19 is a protein called Transcription factor TFIIIB component B",Transcription factor TFIIIB component B",Transcription factor TFIIIB component B",Transcription factor TFIIIB component B",Transcription factor TFIIIB component B".

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	217	Total	C	N	O	S	0	0
			1649	1035	286	321	7		

- Molecule 20 is a DNA chain called DNA (71-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
20	X	51	Total	C	N	O	P	0	0
			1040	503	181	306	50		

- Molecule 21 is a DNA chain called DNA (71-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
21	Y	61	Total	C	N	O	P	0	0
			1249	602	223	364	60		

- Molecule 22 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
22	A	2	Total	Zn	0
			2	2	
22	B	1	Total	Zn	0
			1	1	
22	I	1	Total	Zn	0
			1	1	
22	J	1	Total	Zn	0
			1	1	
22	L	1	Total	Zn	0
			1	1	

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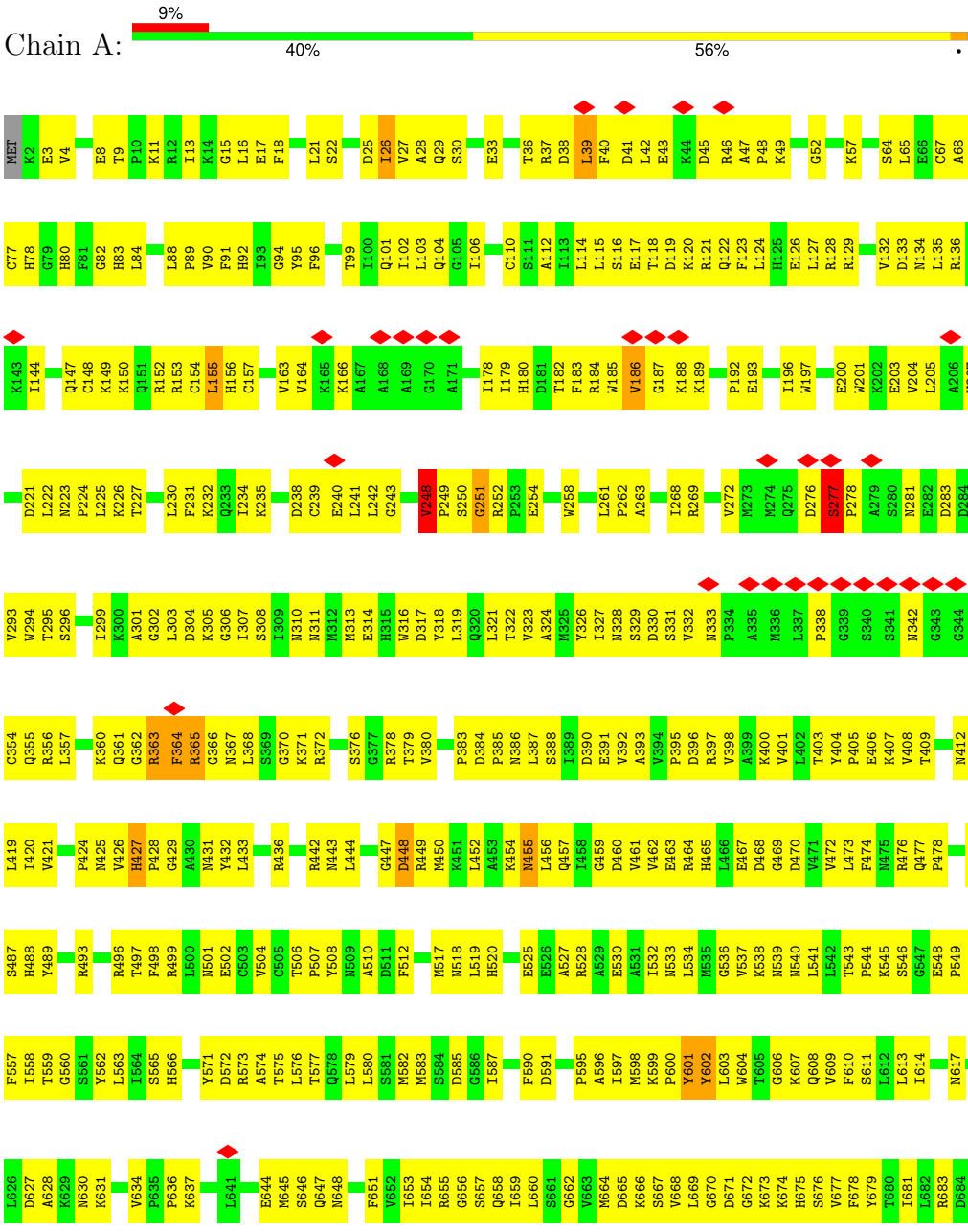
Mol	Chain	Residues	Atoms		AltConf
22	R	1	Total	Zn	0
			1	1	

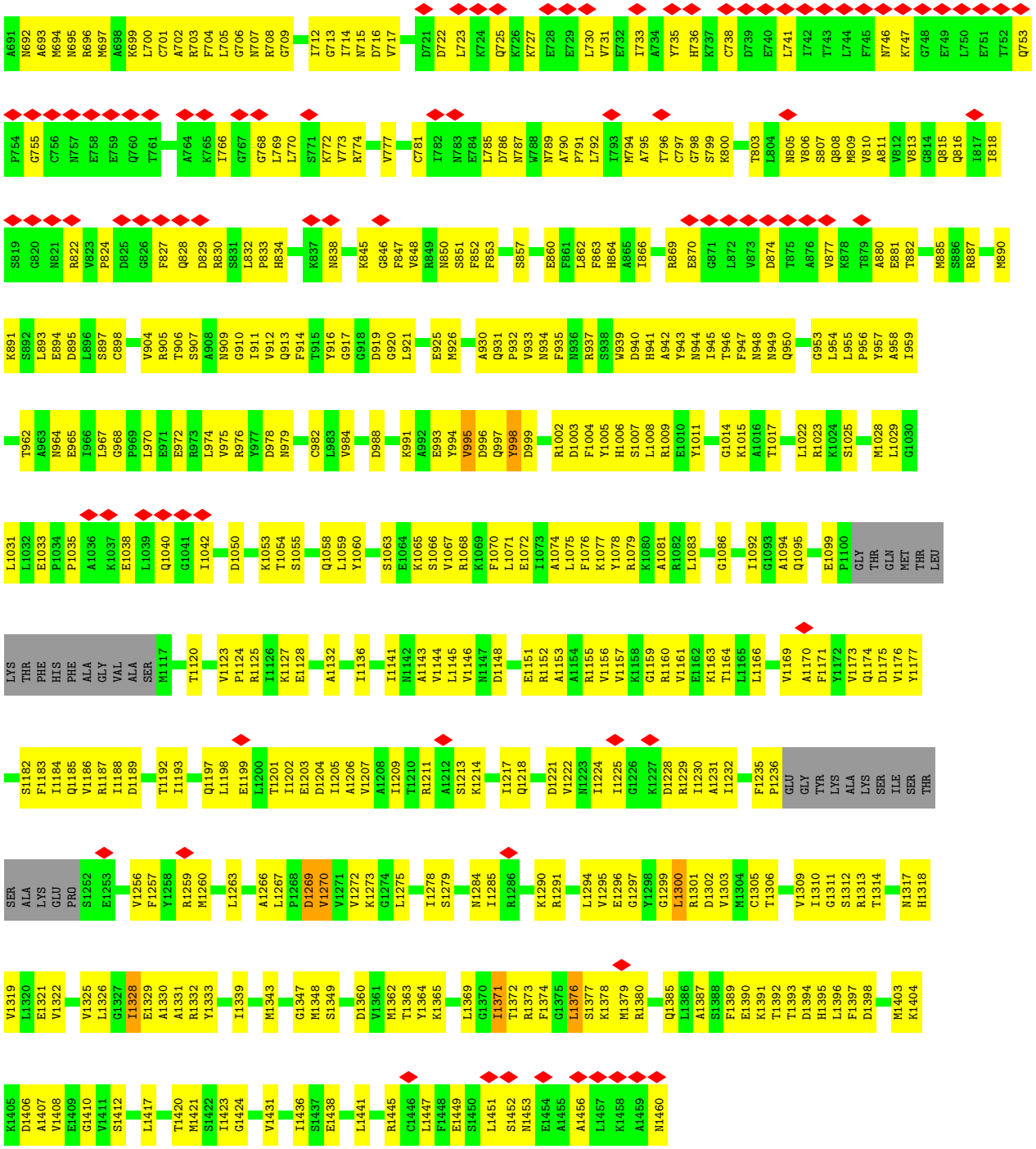
3 Residue-property plots (i)

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

- Molecule 1: DNA-directed RNA polymerase III subunit RPC1

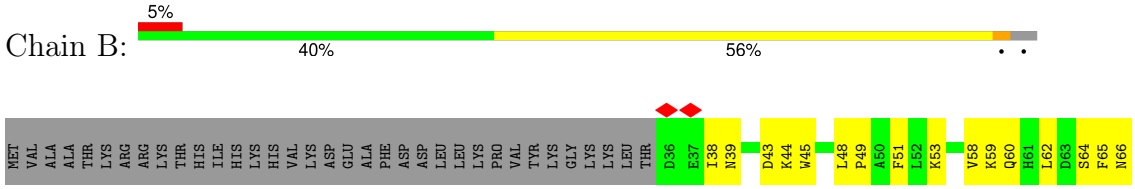
Chain A:

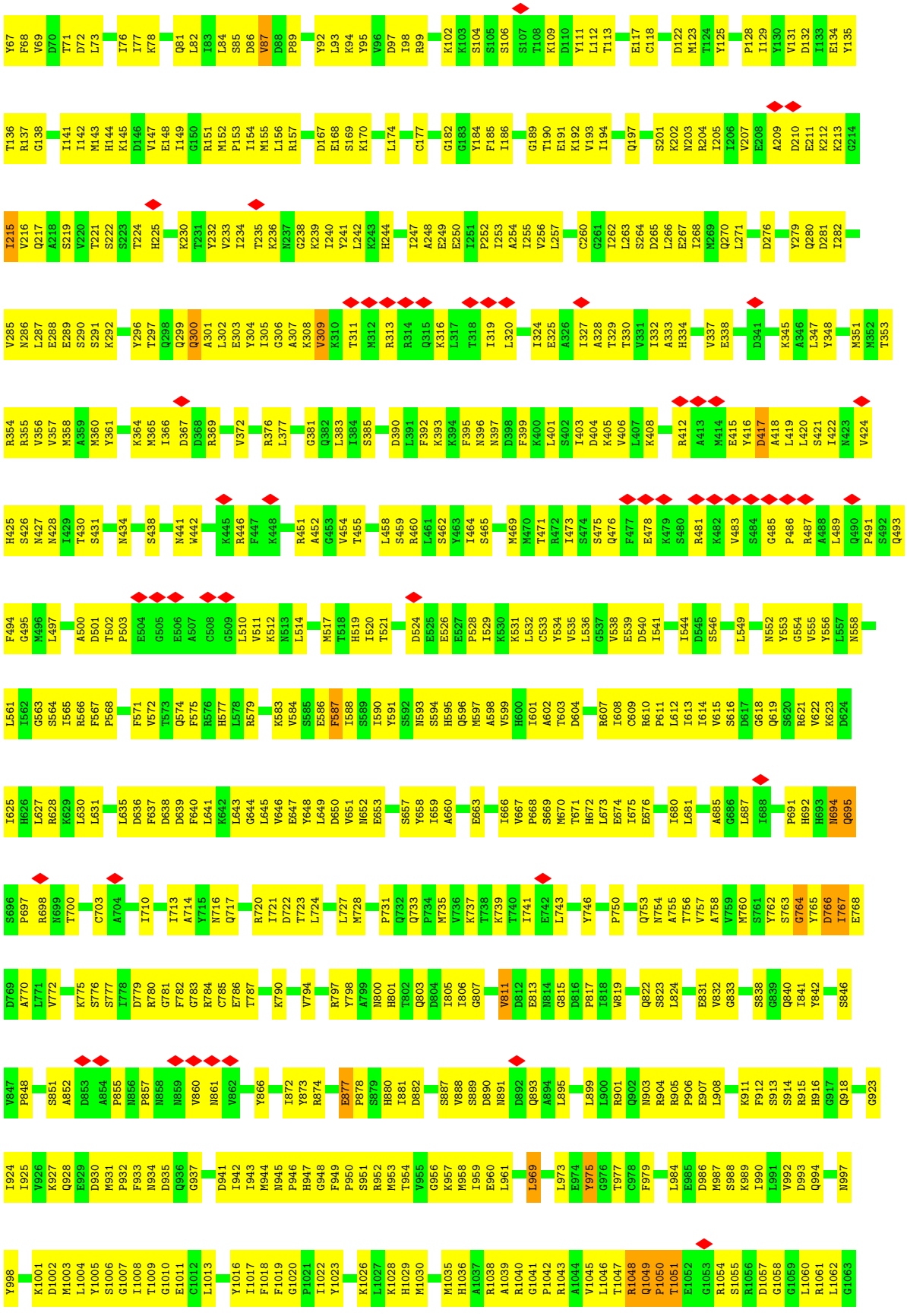


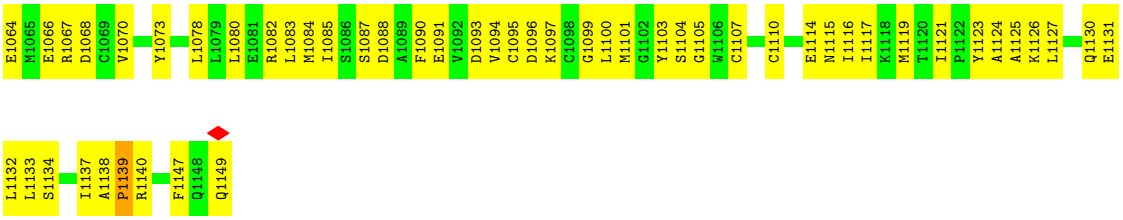


• Molecule 2: DNA-directed RNA polymerase III subunit RPC2

Chain B:

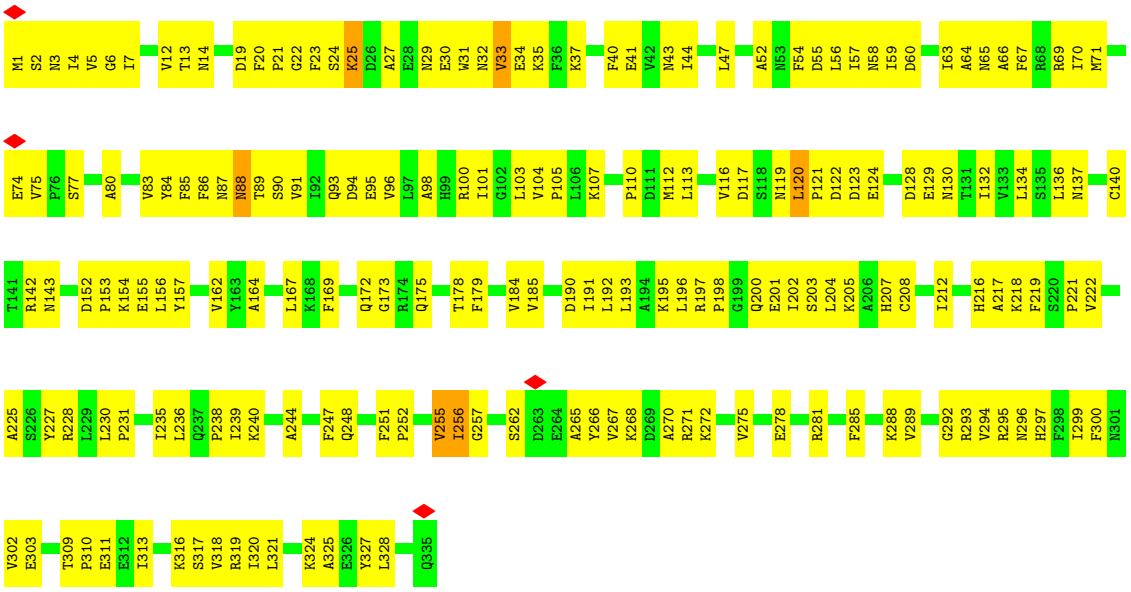



Y67 F68 V69 D70 T71 D72 L73 I76 I77 K78 Q81 L82 I83 L84 S85 D86 V87 D88 P89 Y92 L93 K94 Y95 V96 D97 I98 R99 K102 K103 S104 S105 S106 S107 T108 K109 D110 Y111 L112 T113 E117 C118 D122 M123 T124 Y125 P128 I129 Y130 V131 D132 I133 E134 Y135
T136 R137 G138 I141 I142 M143 H144 K145 D146 V147 E148 I149 G150 R151 M152 P153 I154 M155 L156 R157 D167 E168 S169 K170 L174 C177 G182 G183 Y184 F185 I186 G189 T190 E191 K192 V193 I194 Q197 S201 K202 N203 R204 I205 I206 V207 E208 A209 D210 E211 K212 K213 G214
I215 V216 Q217 A218 S219 V220 T221 S222 S223 T224 H225 K230 T231 Y232 V233 I234 T235 K236 N237 G238 K239 I240 Y241 L242 K243 H244 I247 A248 E249 E250 I251 P252 I253 A254 I255 V256 L257 C260 G261 I262 L263 S264 D265 L266 E267 I268 M269 Q270 L271 D276 Y279 Q280 D281 I282
V285 N286 L287 E288 E289 S290 S291 K292 Y296 T297 Q298 Q299 Q300 A301 L302 E303 Y304 I305 G306 A307 K308 V309 K310 T311 M312 R313 R314 Q315 K316 L317 T318 I319 L320 I324 E325 A326 I327 A328 T329 T330 V331 I332 A333 H334 V337 E338 D341 K345 A346 L347 Y348 M351 M352 T353
R354 R355 V356 V357 M358 A359 M360 Y361 K364 M365 I366 D367 D368 R369 V372 R376 L377 G381 Q382 L383 I384 S385 D390 L391 F392 K393 K394 F395 N396 N397 D398 F399 K400 L401 S402 I403 D404 K405 V406 L407 K408 R412 A413 M414 E415 Y416 D417 A418 L419 L420 S421 I422 N423 V424
H425 S426 N427 N428 I429 T430 S431 N434 S438 N441 W442 K445 R446 F447 K448 R451 A452 G453 L383 Y454 T455 L458 S459 R460 L461 S462 Y463 I464 S465 M469 M470 T471 R472 I473 S474 S475 Q476 F477 E478 K479 S480 R481 K482 V483 S484 G485 P486 R487 A488 L489 Q490 P491 S492 Q493
F494 G495 M496 L497 A500 D501 T502 P503 E504 G505 E506 A507 C508 G509 L510 V511 K512 N513 L514 M517 T518 H519 I520 T521 D524 E525 E526 E527 P528 I529 K530 K531 L532 C533 Y534 V535 L536 G537 V538 E539 D540 I541 L544 D545 S546 L549 N552 Y553 G554 V555 Y556 L557 N558
L561 I562 G563 S564 I565 R566 F567 P568 F571 V572 T573 Q574 F575 R576 H577 L578 R579 K583 V584 S585 E586 F587 I588 S589 T590 Y591 S592 N593 S594 H595 Q596 M597 A598 V599 H600 I601 A602 T603 D604 R607 I608 C609 R610 P611 L612 I613 I614 V615 S616 D617 G618 Q619 S620 R621 V622 K623 D624
I625 H626 L627 R628 K629 L630 L631 L635 D636 F637 D638 D639 F640 L641 K642 L643 G644 L645 V646 E647 Y648 L649 D650 V651 N652 E653 S657 Y658 I659 A660 E663 I666 V667 P668 S669 M670 T671 H672 L673 E674 I675 E676 I680 L681 A685 G686 L687 I688 P691 H692 H693 N694 Q695
S696 P697 R698 N699 T700 C703 A704 I710 I713 A714 Y715 N716 Q717 R720 I721 D722 T723 L724 L727 M728 P731 Q732 Q733 P734 M735 V736 K737 T738 K739 T740 I741 E742 L743 Y746 P750 Q753 N754 A755 T756 V757 A758 V759 M760 S761 Y762 S763 G764 Y765 D766 I767 E768
D769 A770 L771 V772 K775 S776 S777 I778 D779 R780 G781 F782 G783 R784 C785 E786 T787 K790 V794 R797 Y798 A799 N800 H801 T802 Q803 D804 I805 I806 G807 V811 D812 E813 N814 G815 D816 P817 I818 W819 Q822 S823 L824 E831 V832 G833 S838 G839 Q840 I841 Y842 S846
V847 P848 S851 A852 D853 A854 P855 N856 P857 N858 N859 V860 N861 V862 Y866 I872 Y873 R874 E877 P878 S879 H880 I881 D882 S887 V888 S889 D890 N891 D892 Q893 A894 L895 L899 L900 R901 Q902 N903 R904 R905 P906 E907 L908 K911 F912 S913 S914 R915 H916 G917 Q918 G923
I924 I925 V926 K927 Q928 E929 D930 M931 P932 F933 N934 D935 Q936 G937 D941 I942 I943 M944 N945 P946 H947 G948 F949 P950 S951 R952 M953 H954 V955 G956 K957 M958 I959 E960 L961 L969 L973 E974 Y975 G976 T977 C978 F979 L984 E985 D986 M987 S988 K989 I990 L991 V992 D993 Q994 N997
Y998 K1001 D1002 M1003 L1004 Y1005 S1006 G1007 G1010 E1011 C1012 L1013 Y1016 I1017 F1018 F1019 G1020 P1021 I1022 Y1023 K1026 L1027 K1028 H1029 M1030 M1035 H1036 A1037 A1038 A1039 R1040 G1041 P1042 R1043 A1044 V1045 L1046 T1047 R1048 Q1049 P1050 T1051 E1062 G1053 R1054 S1055 R1056 D1057 G1058 G1059 L1060 R1061 L1062 G1063



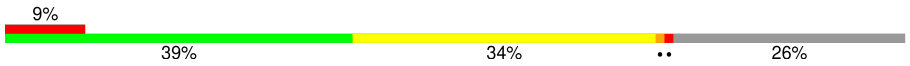
• Molecule 3: DNA-directed RNA polymerases I and III subunit RPAC1

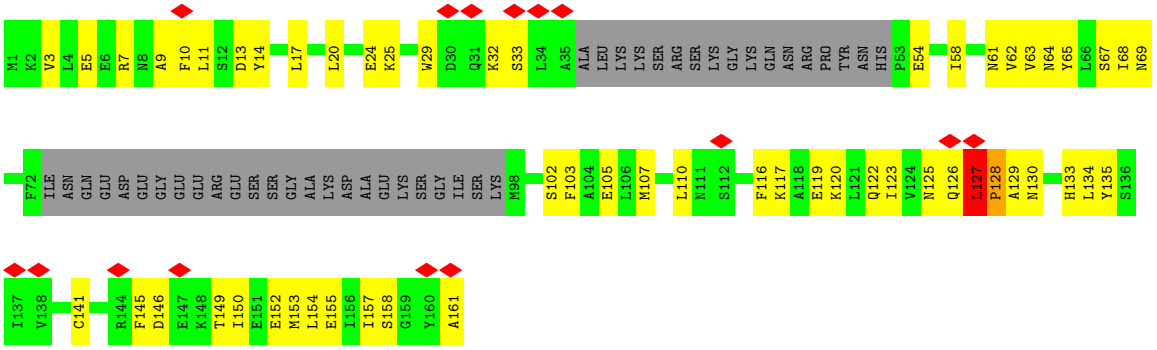
Chain C:



• Molecule 4: DNA-directed RNA polymerase III subunit RPC9

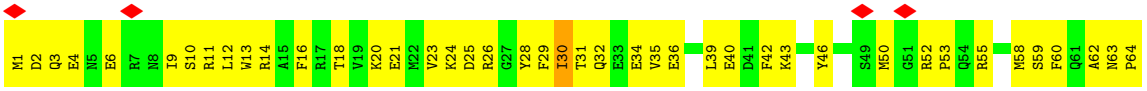
Chain D:

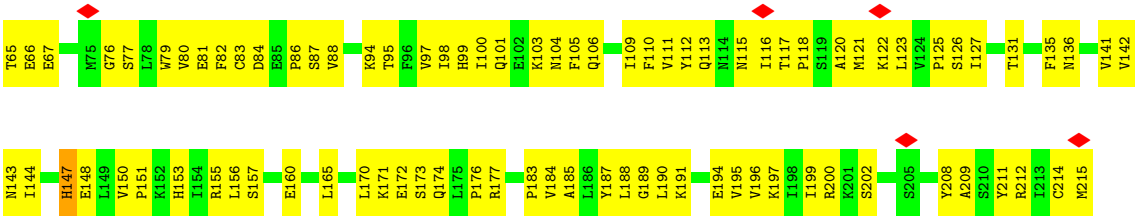




• Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC1

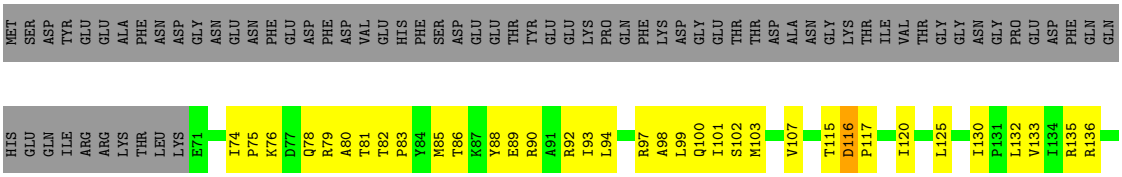
Chain E:

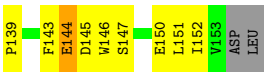




• Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2

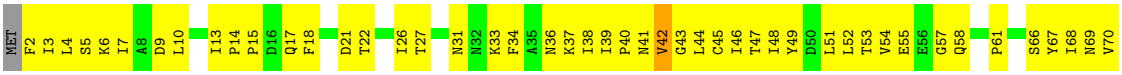
Chain F:

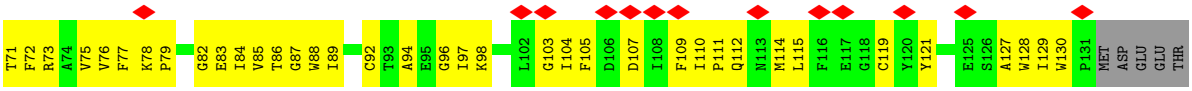


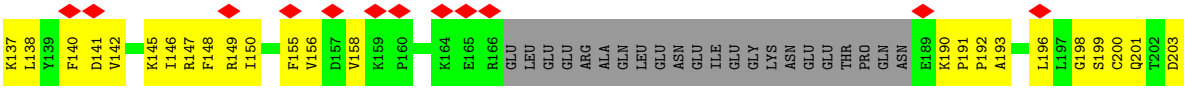


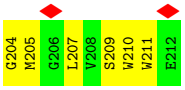
• Molecule 7: DNA-directed RNA polymerase III subunit RPC8

Chain G:



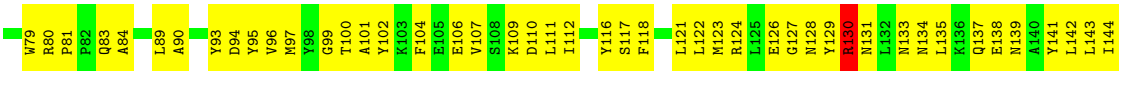






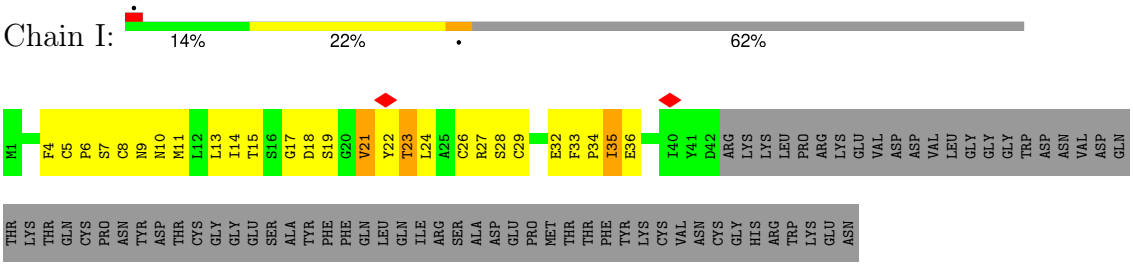
• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3

Chain H:



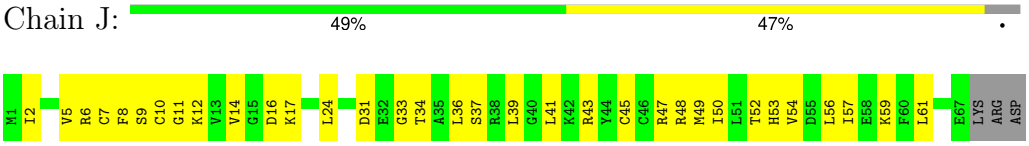
• Molecule 9: DNA-directed RNA polymerase III subunit RPC10

Chain I:



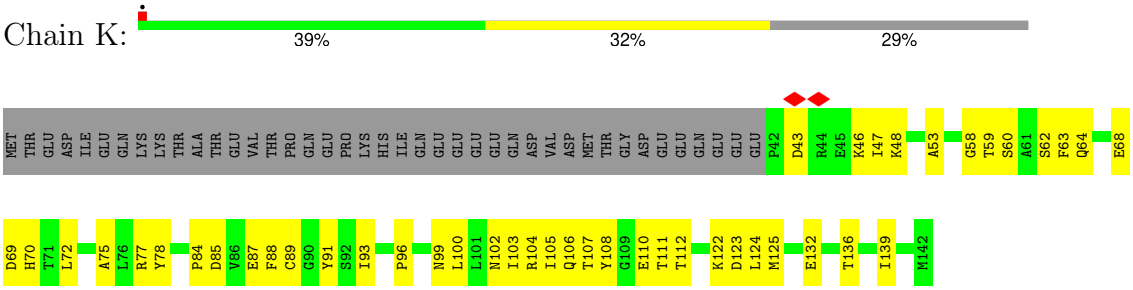
• Molecule 10: DNA-directed RNA polymerases I, II, and III subunit RPABC5

Chain J:



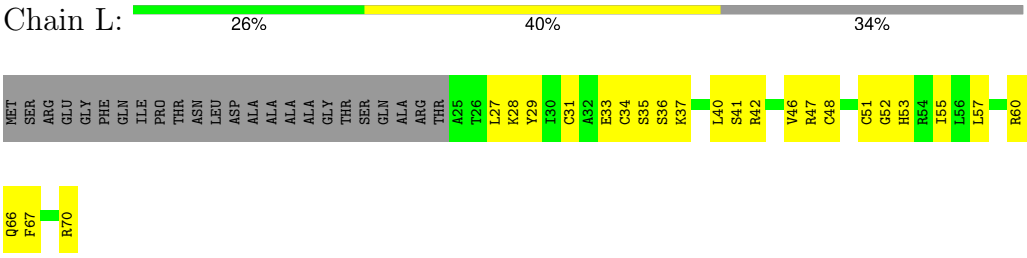
• Molecule 11: DNA-directed RNA polymerases I and III subunit RPAC2

Chain K:



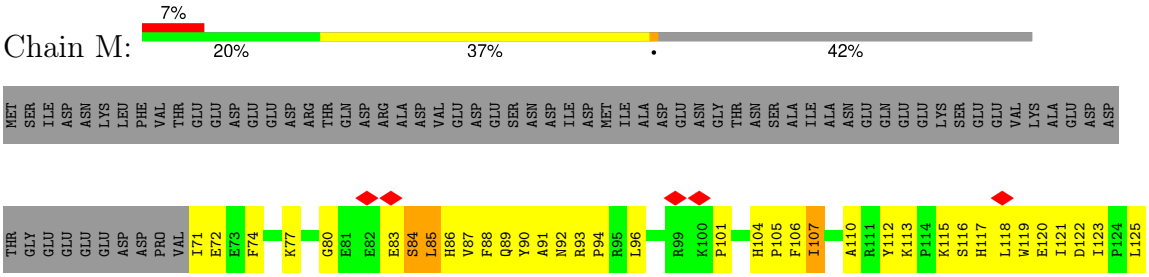
• Molecule 12: DNA-directed RNA polymerases I, II, and III subunit RPABC4

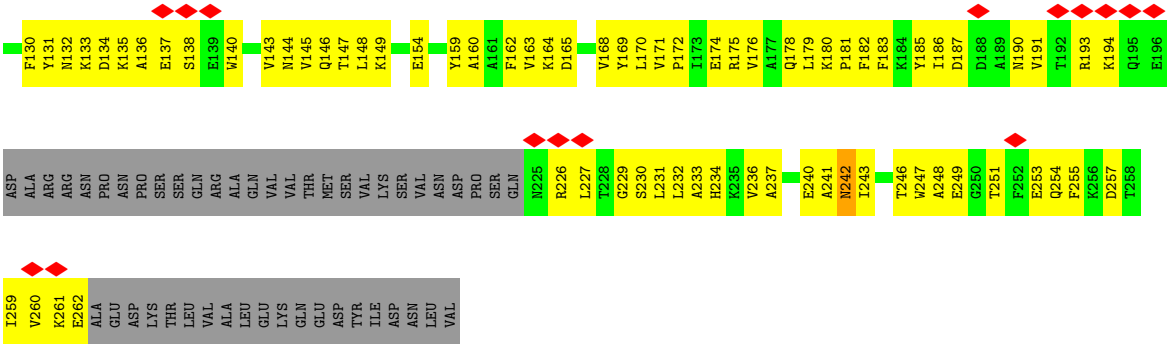
Chain L:



• Molecule 13: DNA-directed RNA polymerase III subunit RPC5

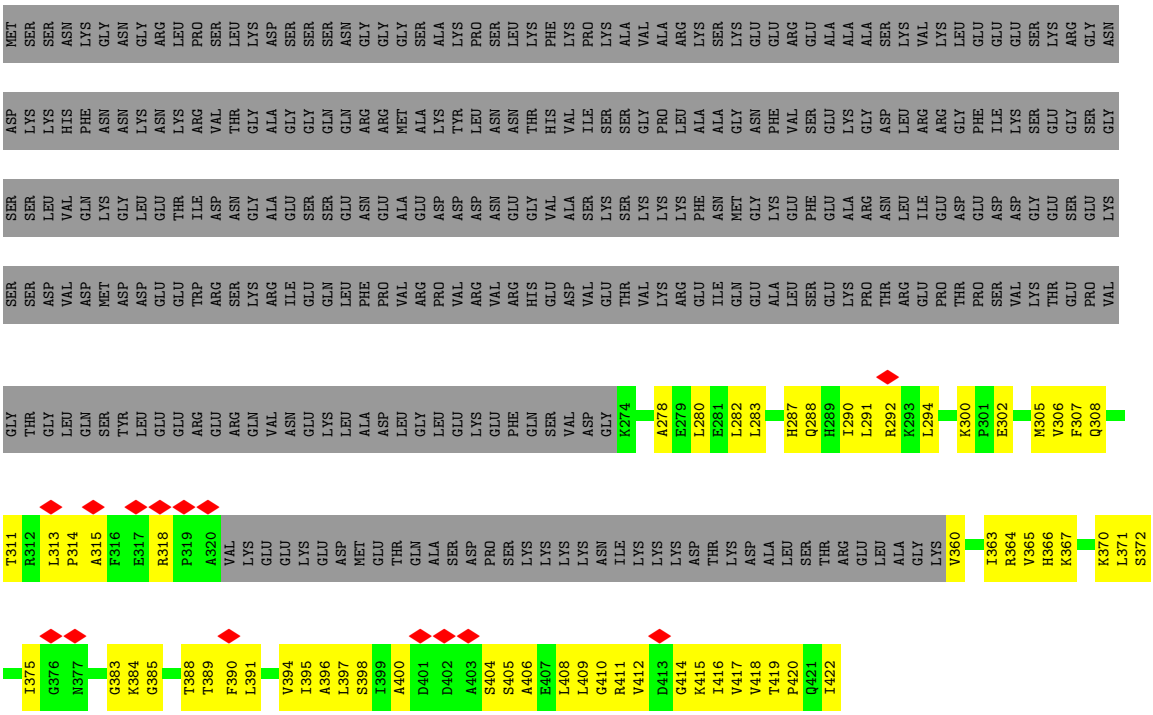
Chain M:





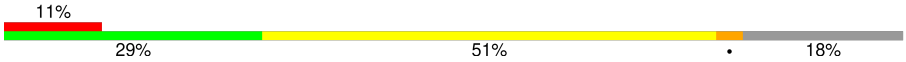
• Molecule 14: DNA-directed RNA polymerase III subunit RPC4

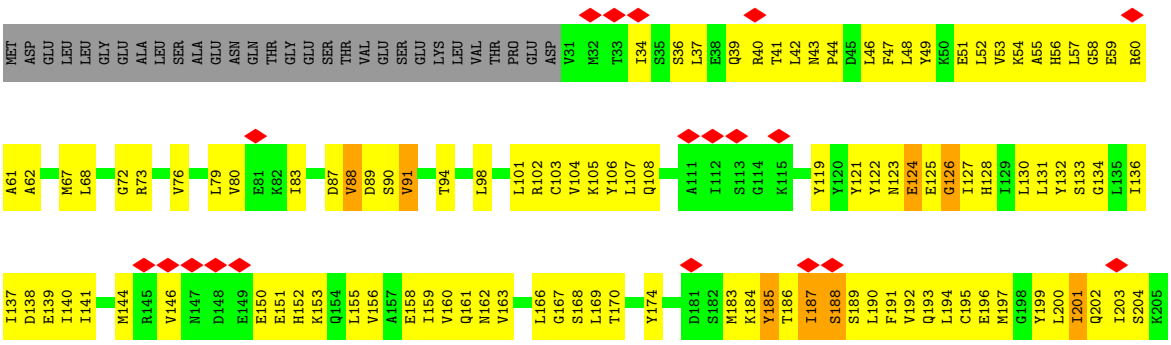
Chain N:

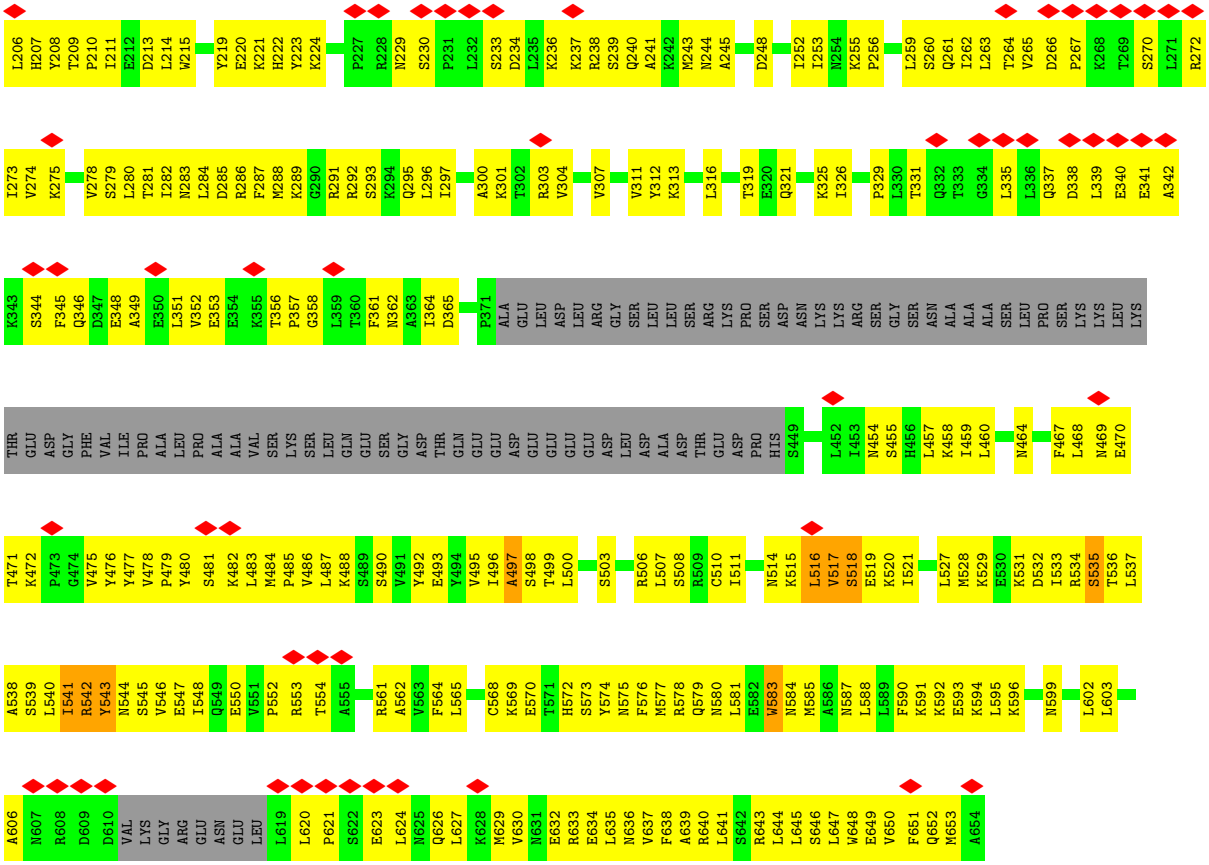


• Molecule 15: DNA-directed RNA polymerase III subunit RPC3

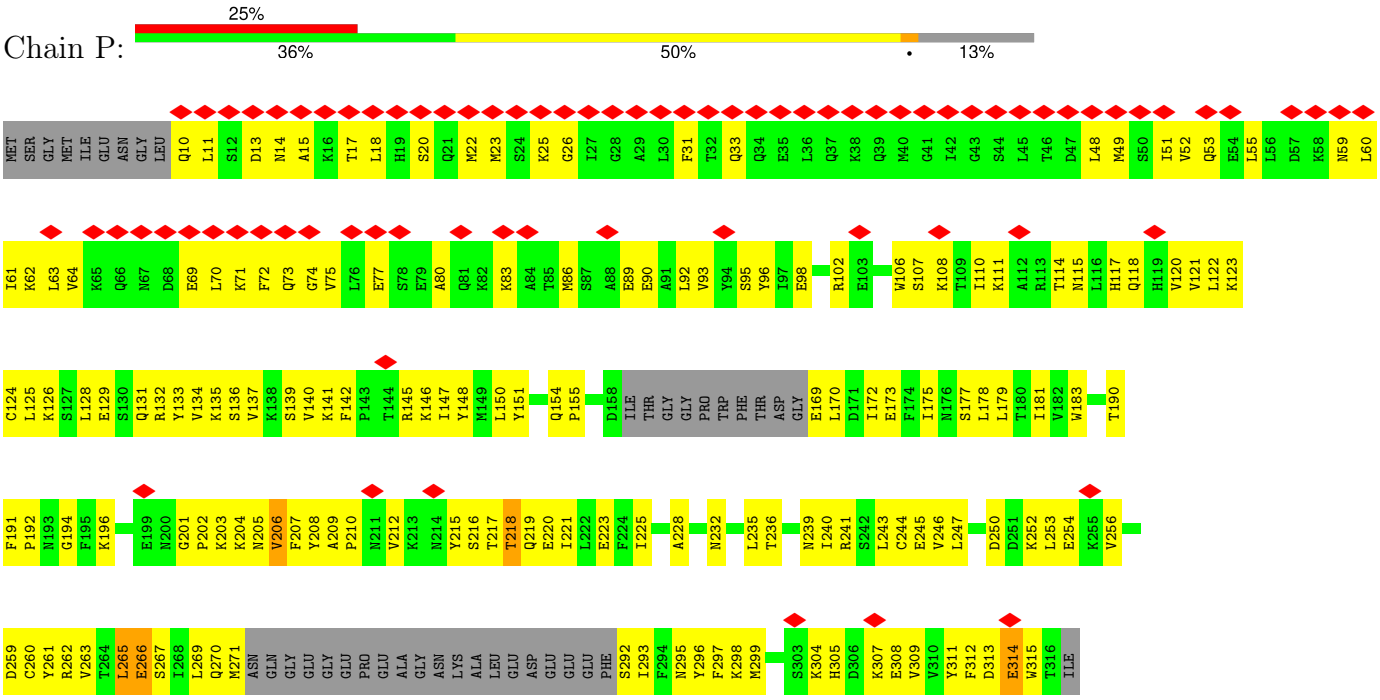
Chain O:





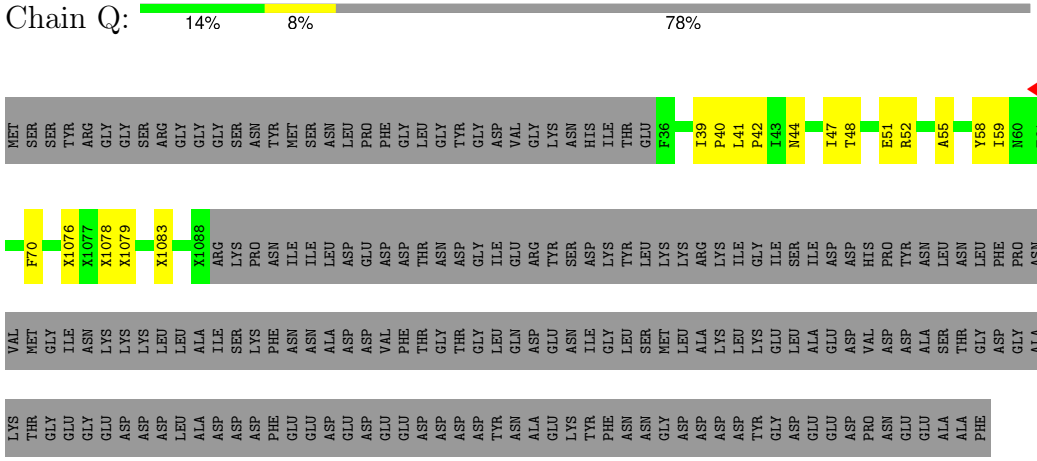


• Molecule 16: DNA-directed RNA polymerase III subunit RPC6



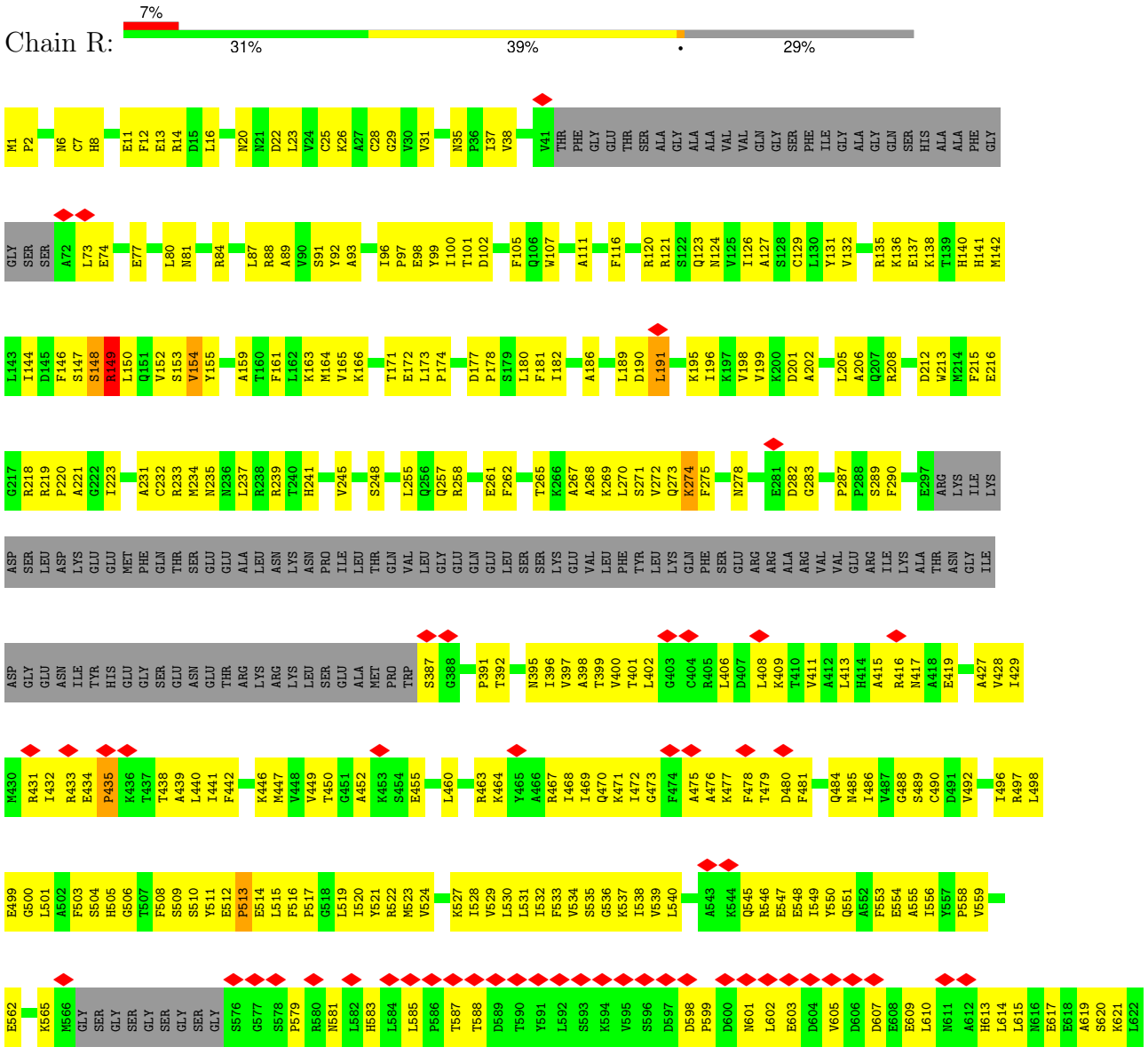
• Molecule 17: DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7,DNA-directed RNA polymerase III subunit RPC7

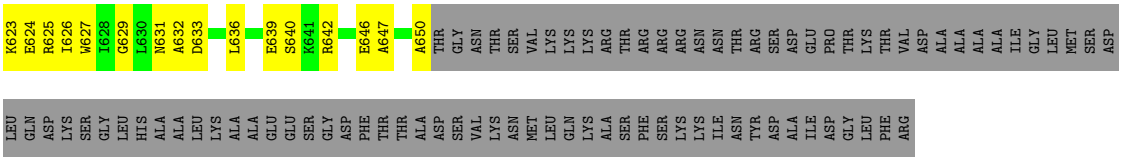
Chain Q:



• Molecule 18: Transcription factor IIIB 70 kDa subunit,TATA-box-binding protein,Transcriptio n factor IIIB 70 kDa subunit

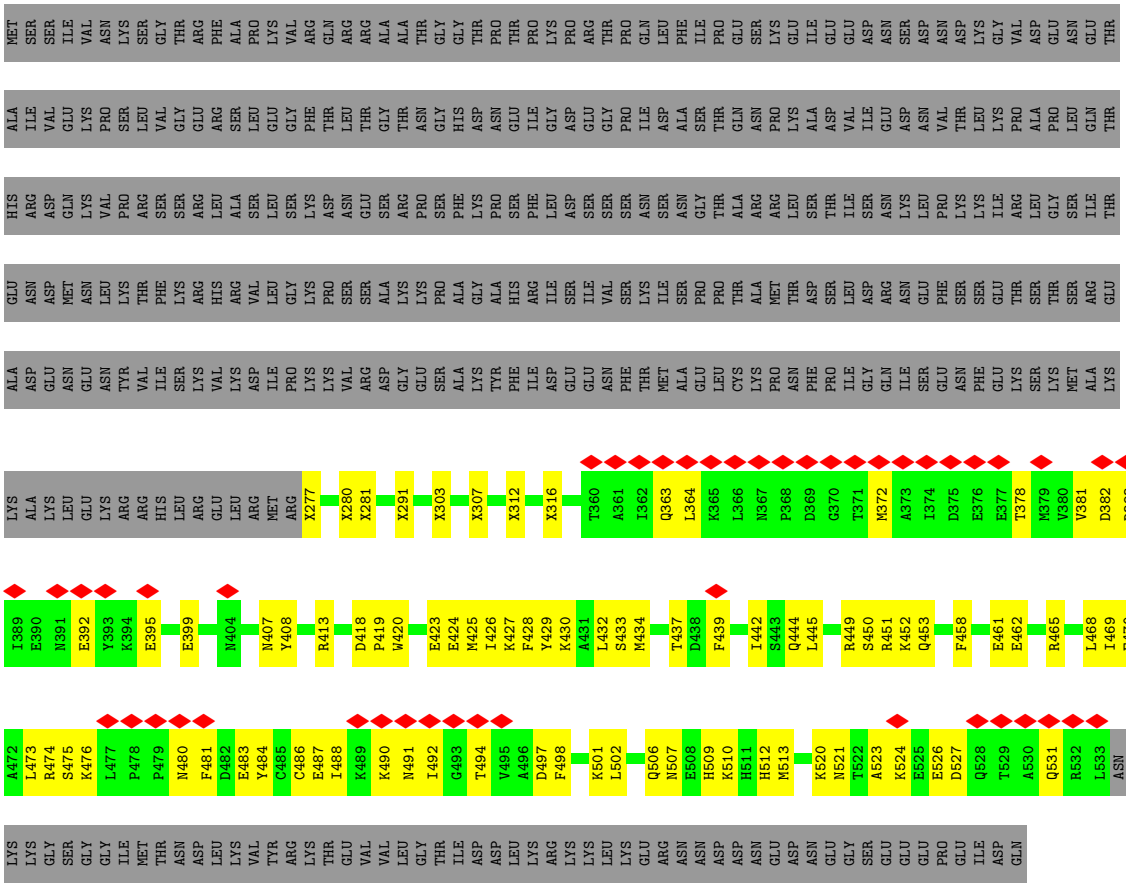
Chain R:





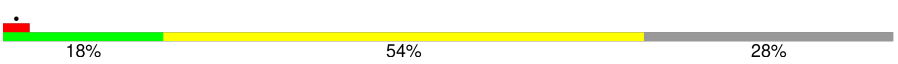
• Molecule 19: Transcription factor TFIIIB component B",Transcription factor TFIIIB component B",Transcription factor TFIIIB component B",Transcription factor TFIIIB component B",Transcription factor TFIIIB component B"

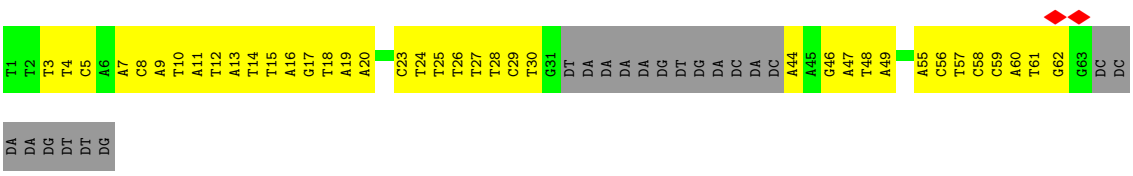
Chain S:



• Molecule 20: DNA (71-MER)

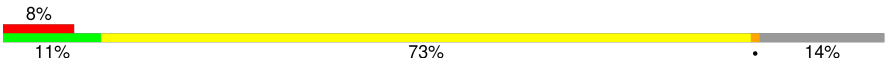
Chain X:

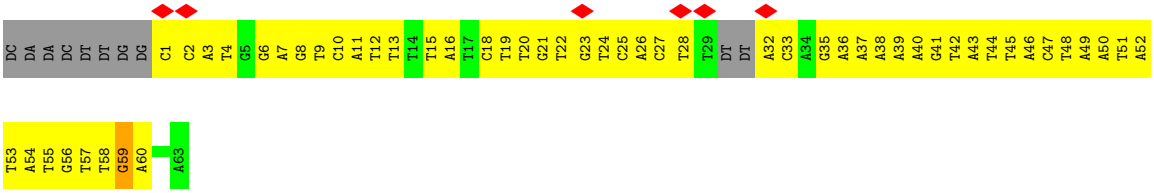




• Molecule 21: DNA (71-MER)

Chain Y:




DC DA DA DC DT DT DG DG C1 C2 A3 T4 G5 G6 A7 G8 T9 C10 A11 T12 T13 T14 T15 A16 T17 C18 T19 T20 G21 T22 G23 T24 C25 A26 C27 T28 T29 DT DT A32 C33 A34 G35 A36 A37 A38 A39 A40 G41 T42 A43 T44 T45 A46 C47 T48 A49 A50 T51 A52

T53 A54 T55 G56 T57 T58 G59 A60 A63

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	96971	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY; CTF amplitude correction was performed following 3D auto refinement in relion.	Depositor
Microscope	JEOL 3200FS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	68.9	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.185	Depositor
Minimum map value	-0.101	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.035	Depositor
Map size (Å)	339.84, 339.84, 339.84	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.18, 1.18, 1.18	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.38	1/11358 (0.0%)	0.60	0/15345
2	B	0.39	0/8943	0.62	0/12068
3	C	0.38	0/2711	0.57	0/3676
4	D	0.28	0/991	0.51	0/1328
5	E	0.34	0/1795	0.54	0/2416
6	F	0.38	0/683	0.58	0/923
7	G	0.30	0/1523	0.51	0/2066
8	H	0.38	0/1138	0.62	0/1540
9	I	0.35	0/328	0.68	0/445
10	J	0.46	0/558	0.58	0/750
11	K	0.41	0/803	0.59	0/1083
12	L	0.36	0/365	0.63	0/485
13	M	0.30	0/1369	0.54	0/1851
14	N	0.27	0/855	0.58	0/1149
15	O	0.31	0/4394	0.61	0/5928
16	P	0.29	0/2282	0.52	0/3075
17	Q	0.39	0/281	0.51	0/381
18	R	0.29	0/4200	0.51	0/5659
19	S	0.29	0/1464	0.50	0/1971
20	X	0.69	0/1164	1.02	0/1792
21	Y	0.67	0/1400	1.06	1/2157 (0.0%)
All	All	0.38	1/48605 (0.0%)	0.62	1/66088 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	427	HIS	C-N	-5.58	1.23	1.34

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
21	Y	59	DG	O4'-C1'-N9	5.54	111.88	108.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	11159	0	11285	955	0
2	B	8788	0	8902	736	0
3	C	2655	0	2628	233	0
4	D	977	0	983	60	0
5	E	1759	0	1788	123	0
6	F	671	0	692	54	0
7	G	1484	0	1485	124	0
8	H	1120	0	1089	85	0
9	I	321	0	305	33	0
10	J	549	0	559	42	0
11	K	792	0	790	51	0
12	L	363	0	386	28	0
13	M	1338	0	1307	129	0
14	N	845	0	891	79	0
15	O	4329	0	4497	465	0
16	P	2242	0	2265	172	0
17	Q	368	0	308	23	0
18	R	4131	0	4230	313	0
19	S	1649	0	1456	86	0
20	X	1040	0	584	45	0
21	Y	1249	0	696	82	0
22	A	2	0	0	0	0
22	B	1	0	0	0	0
22	I	1	0	0	0	0
22	J	1	0	0	0	0
22	L	1	0	0	0	0
22	R	1	0	0	0	0
All	All	47836	0	47126	3523	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 38.

The worst 5 of 3523 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:364:PHE:CD2	1:A:365:ARG:HD3	1.42	1.49
1:A:248:VAL:CG2	1:A:249:PRO:HD2	1.41	1.46
1:A:248:VAL:HG23	1:A:249:PRO:CD	1.48	1.42
3:C:83:VAL:CG1	3:C:85:PHE:CE2	2.06	1.36
2:B:1049:GLN:HB2	2:B:1050:PRO:CD	1.49	1.31

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	1422/1460 (97%)	1110 (78%)	289 (20%)	23 (2%)	8 37
2	B	1112/1149 (97%)	890 (80%)	201 (18%)	21 (2%)	6 32
3	C	333/335 (99%)	281 (84%)	46 (14%)	6 (2%)	7 34
4	D	113/161 (70%)	84 (74%)	26 (23%)	3 (3%)	4 25
5	E	213/215 (99%)	186 (87%)	25 (12%)	2 (1%)	14 50
6	F	81/155 (52%)	67 (83%)	12 (15%)	2 (2%)	4 26
7	G	178/212 (84%)	147 (83%)	29 (16%)	2 (1%)	12 46
8	H	136/146 (93%)	112 (82%)	23 (17%)	1 (1%)	19 56
9	I	40/110 (36%)	30 (75%)	7 (18%)	3 (8%)	1 10
10	J	65/70 (93%)	55 (85%)	10 (15%)	0	100 100
11	K	99/142 (70%)	80 (81%)	19 (19%)	0	100 100
12	L	44/70 (63%)	37 (84%)	7 (16%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
13	M	160/282 (57%)	126 (79%)	31 (19%)	3 (2%)	6 32
14	N	106/422 (25%)	81 (76%)	25 (24%)	0	100 100
15	O	533/654 (82%)	401 (75%)	119 (22%)	13 (2%)	5 27
16	P	271/317 (86%)	225 (83%)	42 (16%)	4 (2%)	8 39
17	Q	33/251 (13%)	29 (88%)	4 (12%)	0	100 100
18	R	514/736 (70%)	435 (85%)	74 (14%)	5 (1%)	13 48
19	S	172/594 (29%)	149 (87%)	23 (13%)	0	100 100
All	All	5625/7481 (75%)	4525 (80%)	1012 (18%)	88 (2%)	10 37

5 of 88 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	186	VAL
1	A	248	VAL
1	A	251	GLY
1	A	277	SER
1	A	348	LYS

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	1232/1257 (98%)	1224 (99%)	8 (1%)	84 88
2	B	975/1006 (97%)	972 (100%)	3 (0%)	91 92
3	C	296/296 (100%)	295 (100%)	1 (0%)	91 92
4	D	110/145 (76%)	109 (99%)	1 (1%)	75 83
5	E	197/197 (100%)	197 (100%)	0	100 100
6	F	73/137 (53%)	73 (100%)	0	100 100
7	G	164/190 (86%)	163 (99%)	1 (1%)	84 88
8	H	123/128 (96%)	122 (99%)	1 (1%)	79 85
9	I	38/98 (39%)	38 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
10	J	62/65 (95%)	62 (100%)	0	100 100
11	K	91/130 (70%)	91 (100%)	0	100 100
12	L	40/57 (70%)	40 (100%)	0	100 100
13	M	142/249 (57%)	141 (99%)	1 (1%)	81 87
14	N	92/360 (26%)	92 (100%)	0	100 100
15	O	495/593 (84%)	488 (99%)	7 (1%)	62 76
16	P	255/285 (90%)	253 (99%)	2 (1%)	79 85
17	Q	31/195 (16%)	31 (100%)	0	100 100
18	R	450/623 (72%)	447 (99%)	3 (1%)	81 87
19	S	157/494 (32%)	157 (100%)	0	100 100
All	All	5023/6505 (77%)	4995 (99%)	28 (1%)	82 88

5 of 28 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	H	130	ARG
18	R	191	LEU
15	O	184	LYS
16	P	266	GLU
15	O	124	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 84 such sidechains are listed below:

Mol	Chain	Res	Type
14	N	288	GLN
16	P	239	ASN
15	O	43	ASN
15	O	514	ASN
18	R	235	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 7 ligands modelled in this entry, 7 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
19	S	1
17	Q	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	S	319:UNK	C	360:THR	N	37.39
1	Q	70:PHE	C	1070:UNK	N	14.81

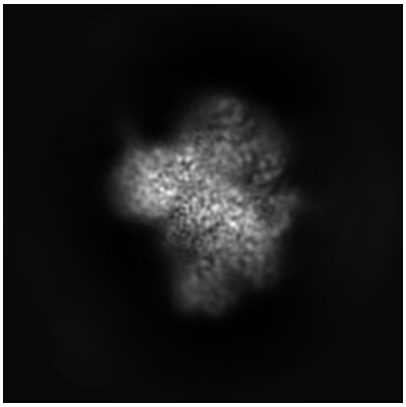
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-7532. These allow visual inspection of the internal detail of the map and identification of artifacts.

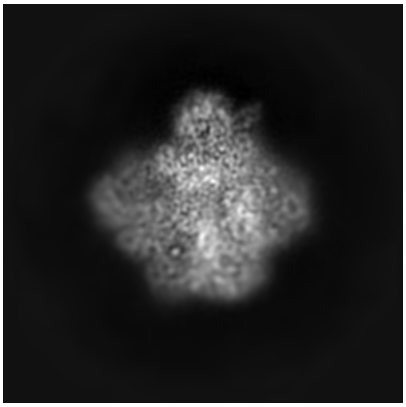
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

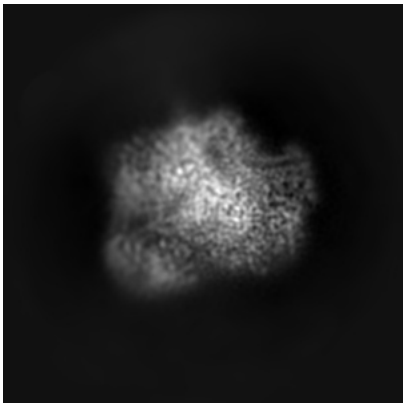
6.1.1 Primary map



X



Y

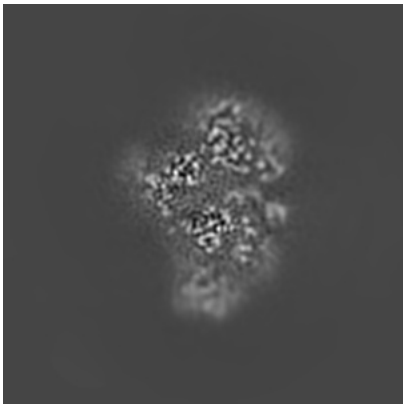


Z

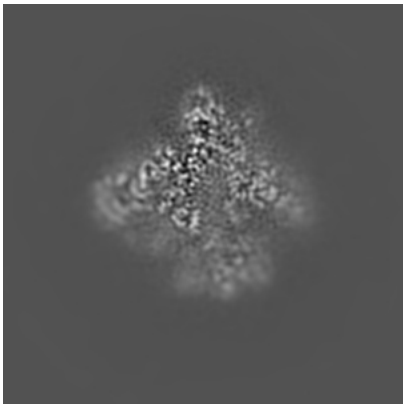
The images above show the map projected in three orthogonal directions.

6.2 Central slices

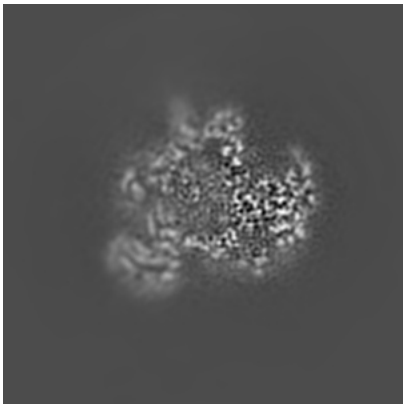
6.2.1 Primary map



X Index: 144



Y Index: 144

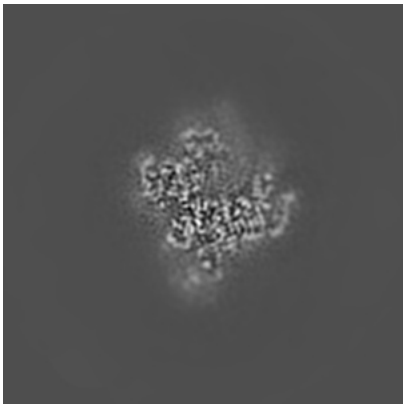


Z Index: 144

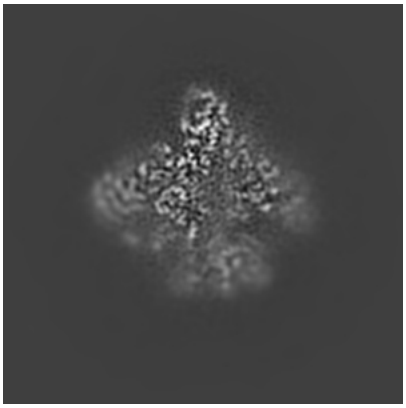
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

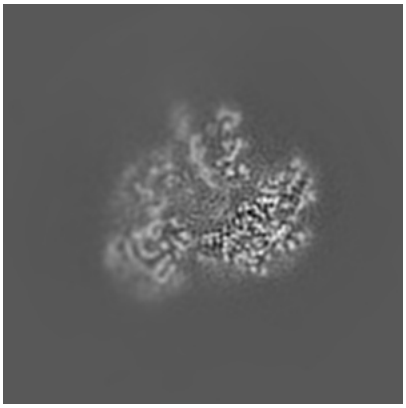
6.3.1 Primary map



X Index: 168



Y Index: 147

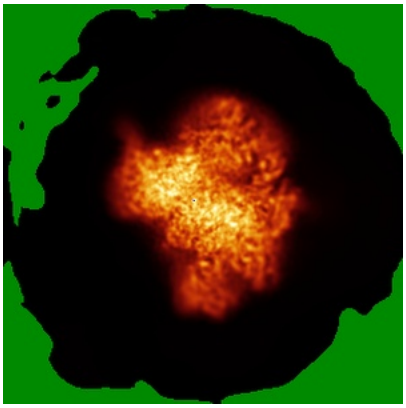


Z Index: 150

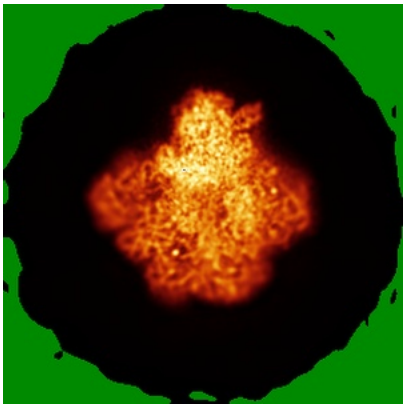
The images above show the largest variance slices of the map in three orthogonal directions.

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

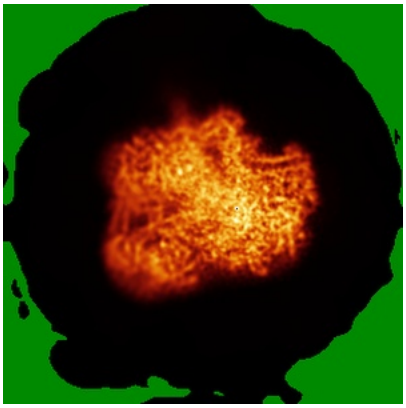
6.4.1 Primary map



X



Y

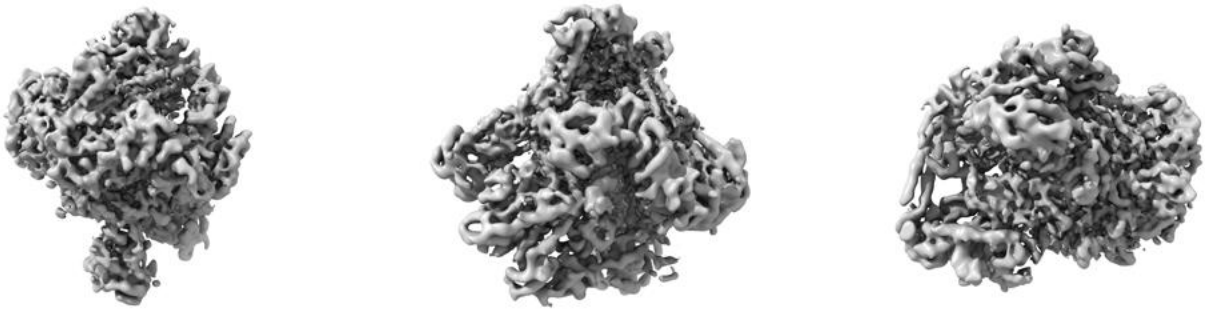


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.035. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

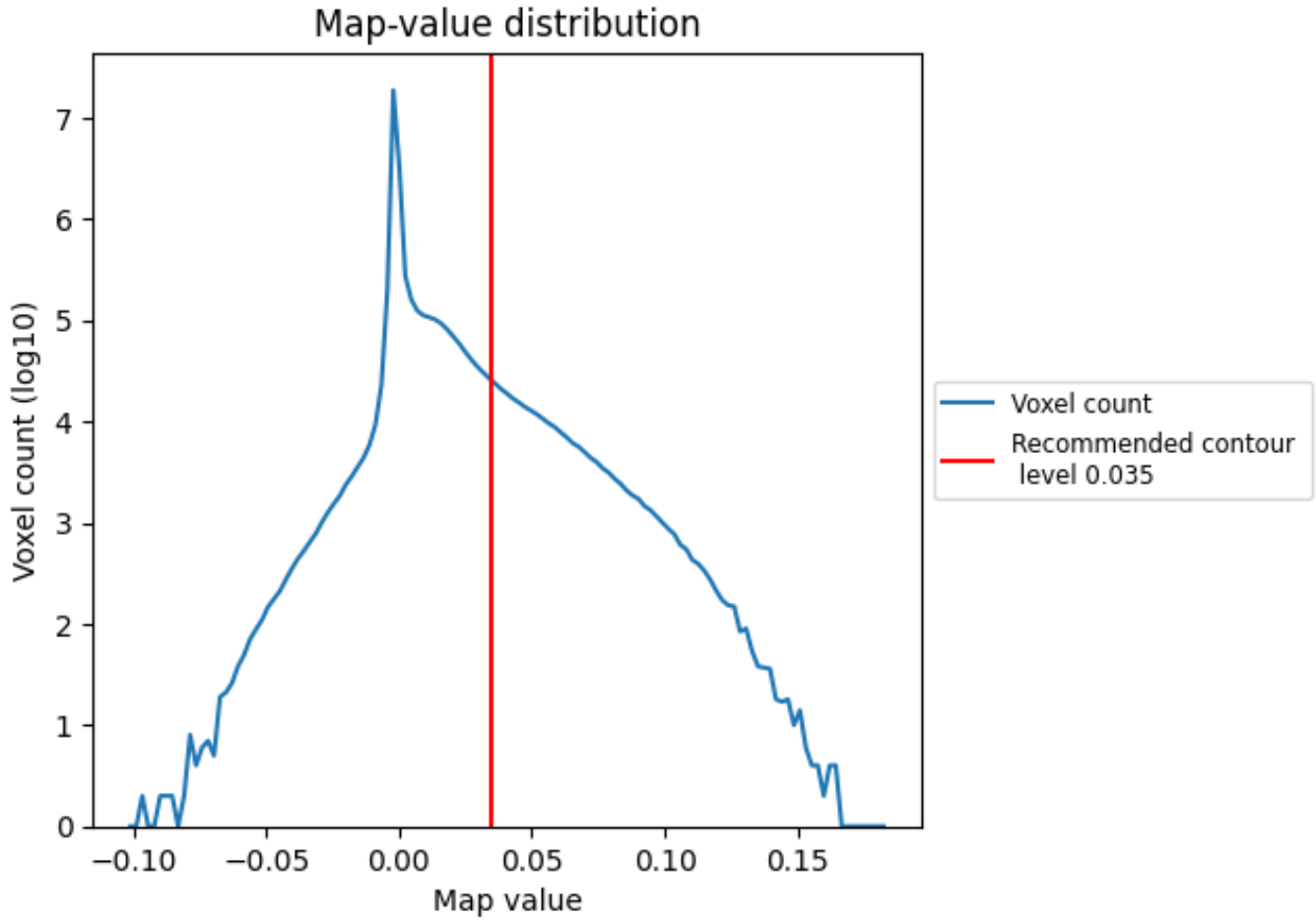
6.6 Mask visualisation (i)

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

7 Map analysis

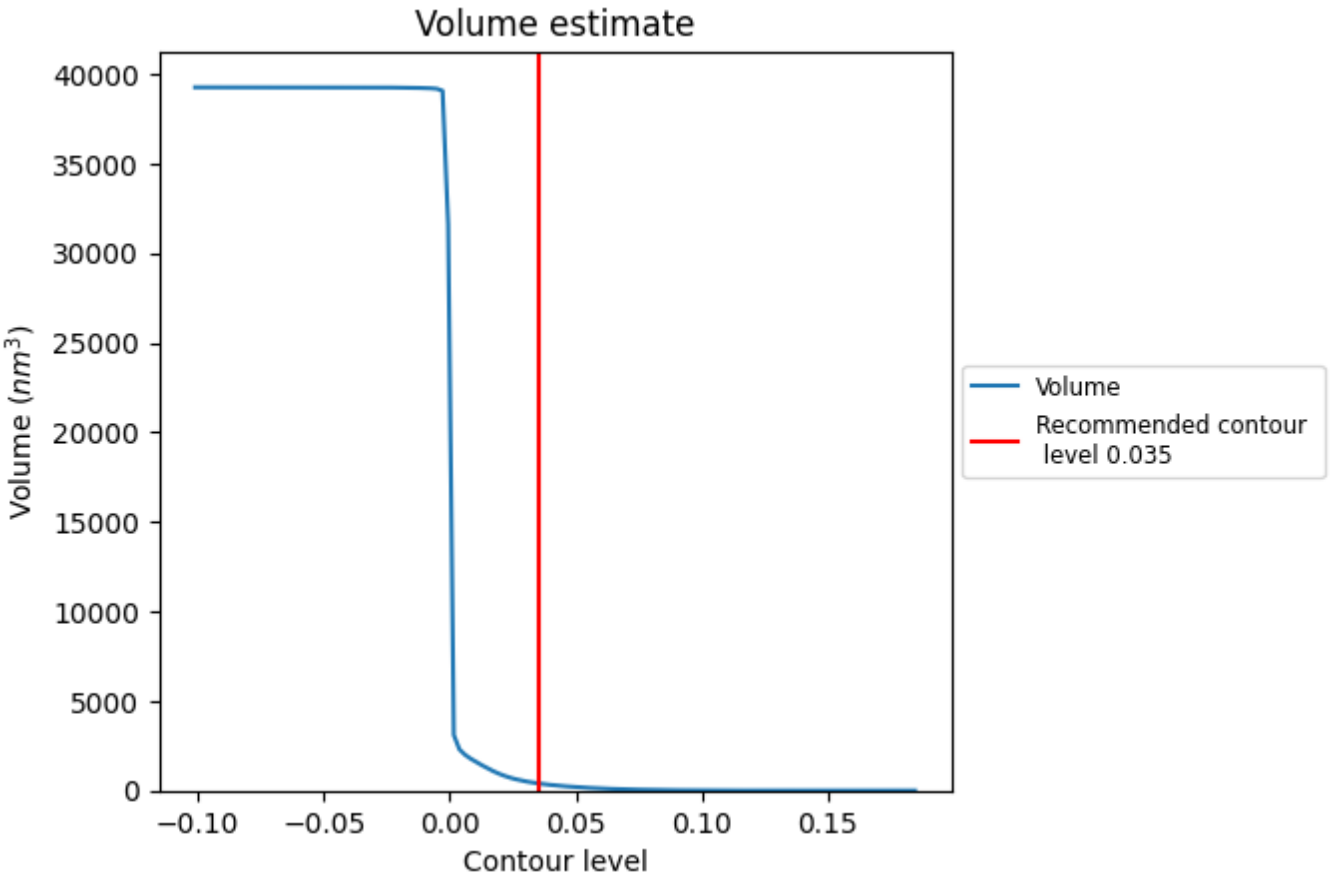
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

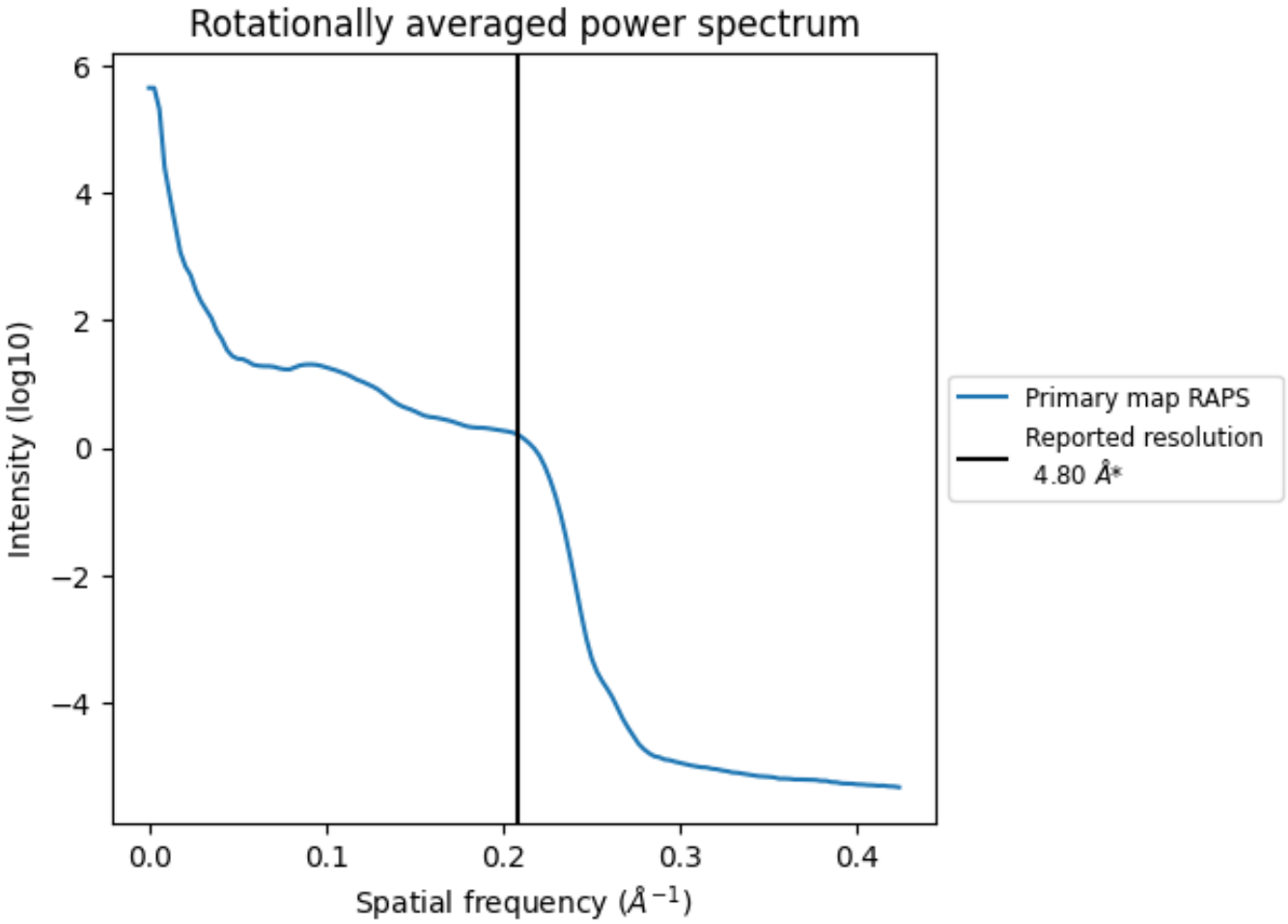
7.2 Volume estimate (i)



The volume at the recommended contour level is 402 nm^3; this corresponds to an approximate mass of 363 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)

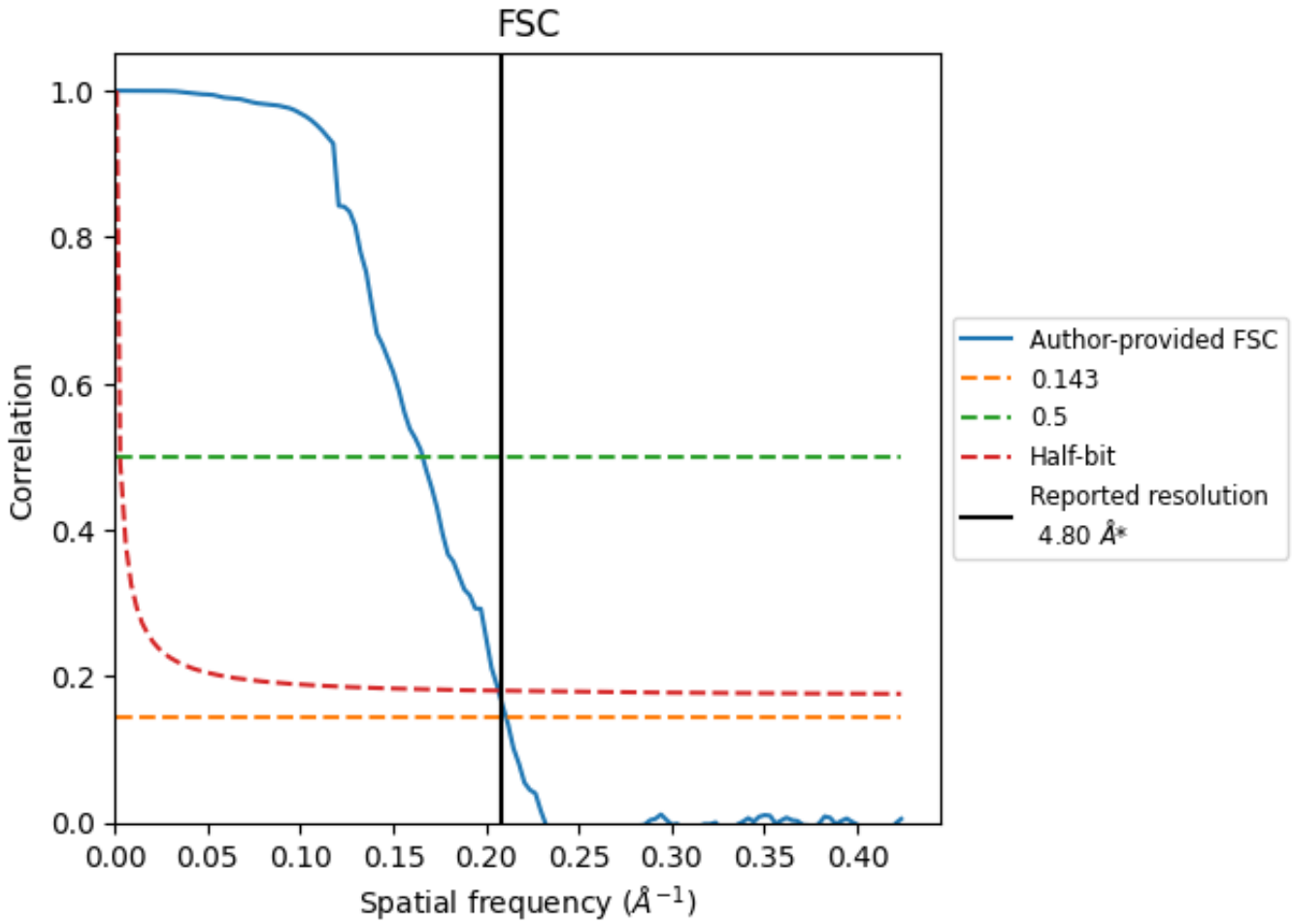


*Reported resolution corresponds to spatial frequency of 0.208 $Å^{-1}$

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 0.208 Å^{-1}

8.2 Resolution estimates (i)

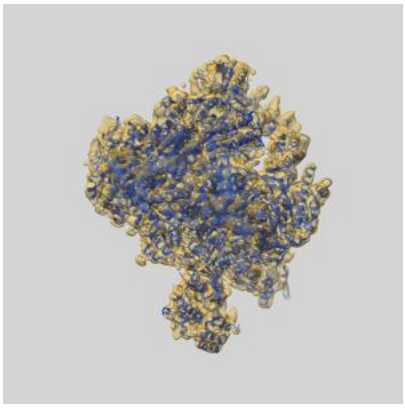
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.80	-	-
Author-provided FSC curve	4.74	6.03	4.84
Unmasked-calculated*	-	-	-

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

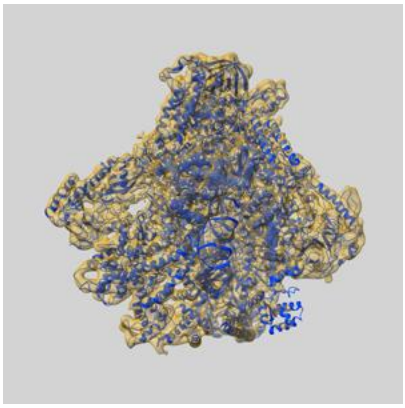
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-7532 and PDB model 6CND. Per-residue inclusion information can be found in section 3 on page 9.

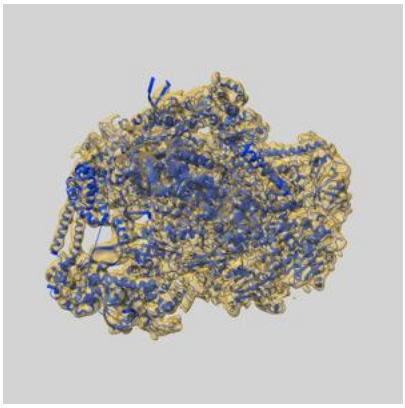
9.1 Map-model overlay



X



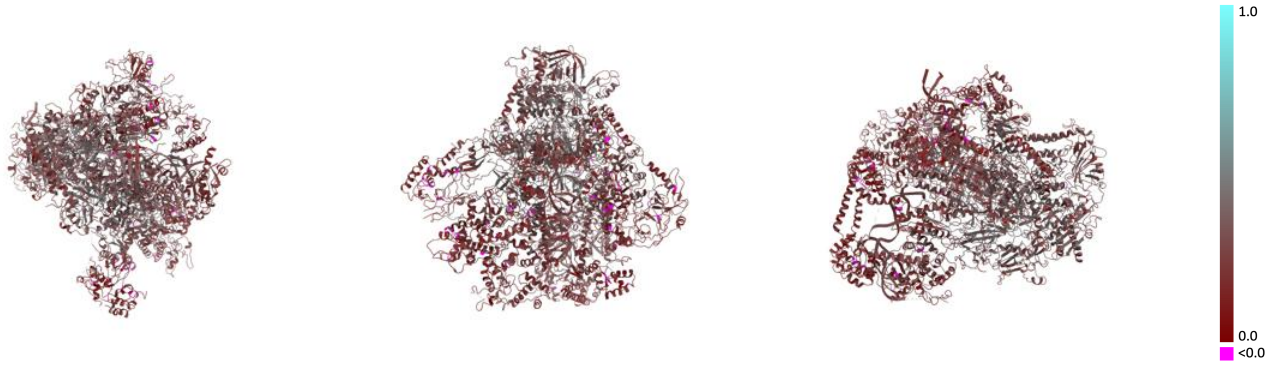
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.035 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.

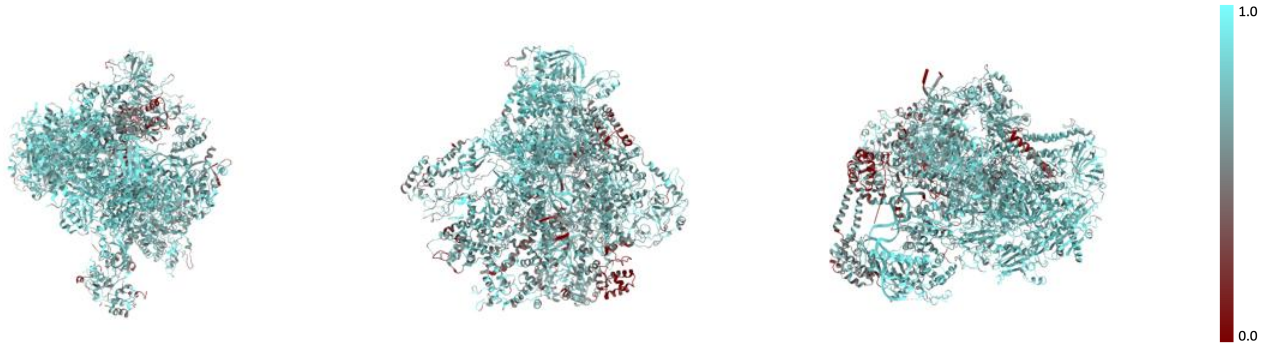
9.2 Q-score mapped to coordinate model (i)



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.

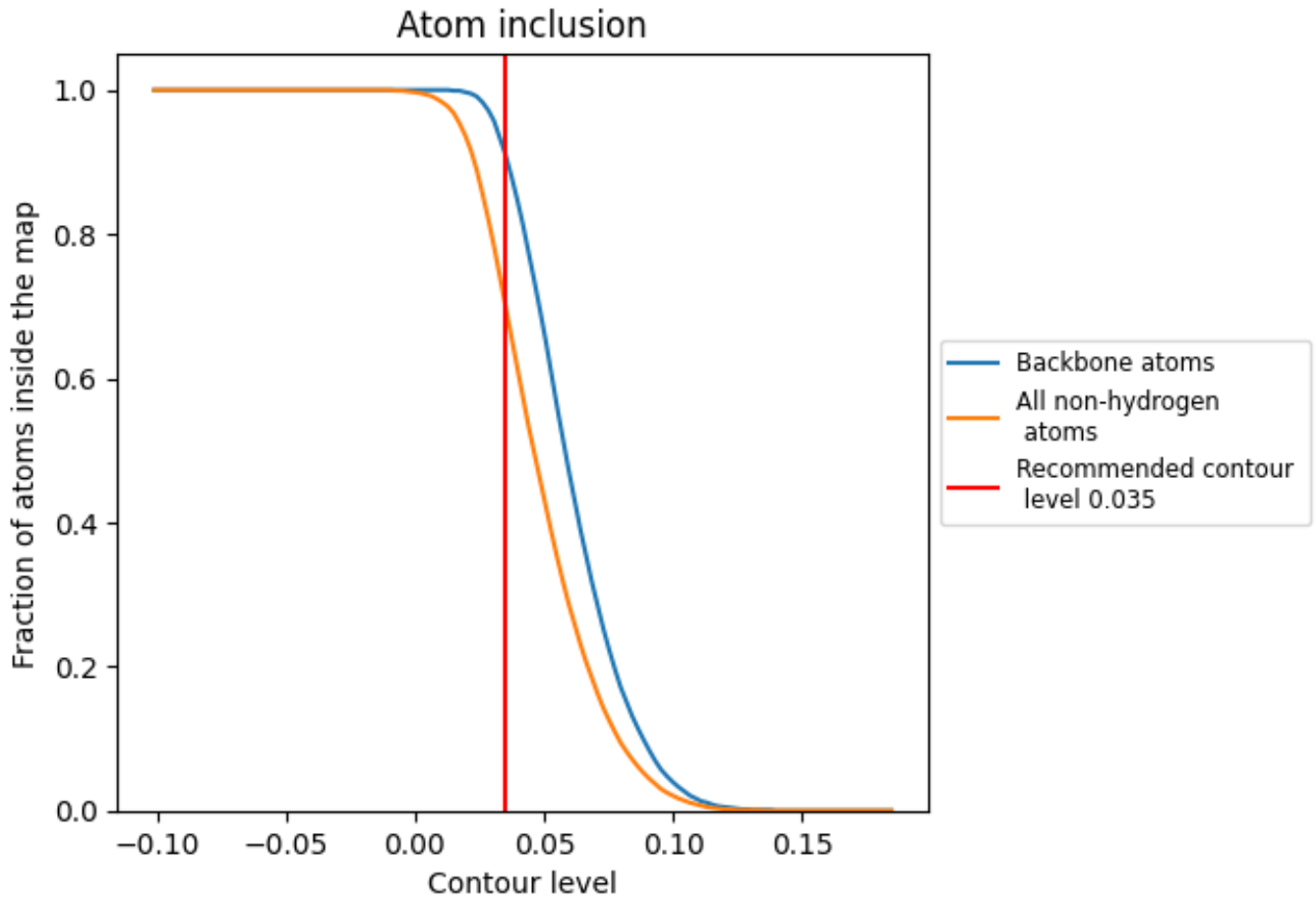
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.035).

9.4 Atom inclusion (i)



At the recommended contour level, 91% of all backbone atoms, 70% 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 (0.035) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7020	0.2910
A	0.7150	0.3260
B	0.7450	0.3380
C	0.8160	0.3420
D	0.6200	0.1930
E	0.7480	0.2860
F	0.8160	0.3600
G	0.6810	0.2350
H	0.7830	0.3240
I	0.7290	0.2520
J	0.8240	0.3660
K	0.7970	0.3450
L	0.8060	0.3510
M	0.6190	0.2300
N	0.6590	0.2340
O	0.6100	0.2230
P	0.5390	0.2110
Q	0.8220	0.3060
R	0.6500	0.2350
S	0.5470	0.2340
X	0.8140	0.2880
Y	0.7570	0.3000