



Full wwPDB EM Validation Report ⓘ

Aug 6, 2026 – 05:00 pm BST

PDB ID : 9T63 / pdb_00009t63
EMDB ID : EMD-55603
Title : Asymmetric unit of a cytoplasmic lattice filament repeat unit
Authors : Singh, K.; Harasimov, K.; Carter, A.
Deposited on : 2025-11-06
Resolution : 4.70 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

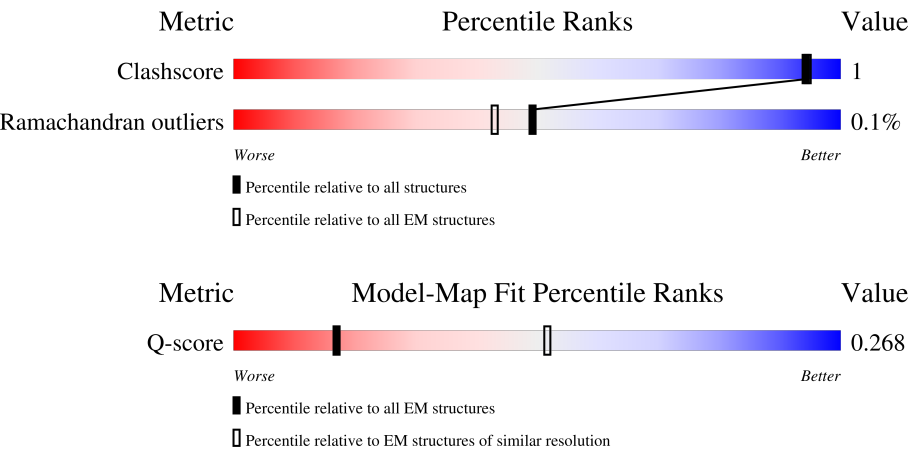
EMDB validation analysis : 0.0.1.dev133
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

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 4.70 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Q-score	-	25397	1989 (4.20 - 5.20)

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 $\leq 5\%$. 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	682	10% 98% .
1	B	682	13% 99% .
1	C	682	86% 99% .
1	D	682	84% 98% .
1	E	682	88% 99% .

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	682	
1	G	682	
1	H	682	
1	I	682	
1	J	682	
2	O	164	
2	R	164	
3	S	440	
4	X	937	
4	Y	937	
5	Z	993	
6	b	147	
7	f	163	
7	h	163	
8	T	228	
9	a	782	
10	M	1163	
10	P	1163	
11	N	581	
11	Q	581	
12	c	449	
13	d	445	
14	e	466	
14	g	466	

2 Entry composition [i](#)

There are 14 unique types of molecules in this entry. The entry contains 76879 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 Inactive protein-arginine deiminase type-6.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	A	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	B	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	C	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	D	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	E	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	F	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	G	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	H	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	I	682	Total	C	N	O	0	0
			3373	2009	682	682		
1	J	682	Total	C	N	O	0	0
			3373	2009	682	682		

- Molecule 2 is a protein called Oocyte-expressed protein homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	O	119	Total	C	N	O	0	0
			592	354	119	119		
2	R	89	Total	C	N	O	0	0
			442	264	89	89		

- Molecule 3 is a protein called KH domain-containing protein 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	S	136	Total	C	N	O	0	0
			673	401	136	136		

- Molecule 4 is a protein called NLR family, pyrin domain containing 4F.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	Y	845	Total	C	N	O	0	0
			4196	2506	845	845		
4	X	935	Total	C	N	O	0	0
			4643	2773	935	935		

- Molecule 5 is a protein called NACHT, LRR and PYD domains-containing protein 14.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	Z	966	Total	C	N	O	0	0
			4794	2862	966	966		

- Molecule 6 is a protein called Ubiquitin-conjugating enzyme E2 D3.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	b	147	Total	C	N	O	0	0
			729	435	147	147		

- Molecule 7 is a protein called S-phase kinase-associated protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	f	163	Total	C	N	O	0	0
			809	483	163	163		
7	h	163	Total	C	N	O	0	0
			809	483	163	163		

- Molecule 8 is a protein called Zinc finger BED domain-containing protein 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	T	63	Total	C	N	O	0	0
			311	185	63	63		

- Molecule 9 is a protein called E3 ubiquitin-protein ligase UHRF1.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	a	651	Total	C	N	O	0	0
			3211	1909	651	651		

- Molecule 10 is a protein called NACHT, LRR and PYD domains-containing protein 5.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	M	949	Total	C	N	O	0	0
			4702	2804	949	949		
10	P	949	Total	C	N	O	0	0
			4702	2804	949	949		

- Molecule 11 is a protein called Transducin-like enhancer protein 6.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	N	367	Total	C	N	O	0	0
			1812	1078	367	367		
11	Q	367	Total	C	N	O	0	0
			1812	1078	367	367		

- Molecule 12 is a protein called Tubulin alpha-1C chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	c	440	Total	C	N	O	0	0
			2167	1287	440	440		

- Molecule 13 is a protein called Tubulin beta-4B chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	d	431	Total	C	N	O	0	0
			2121	1259	431	431		

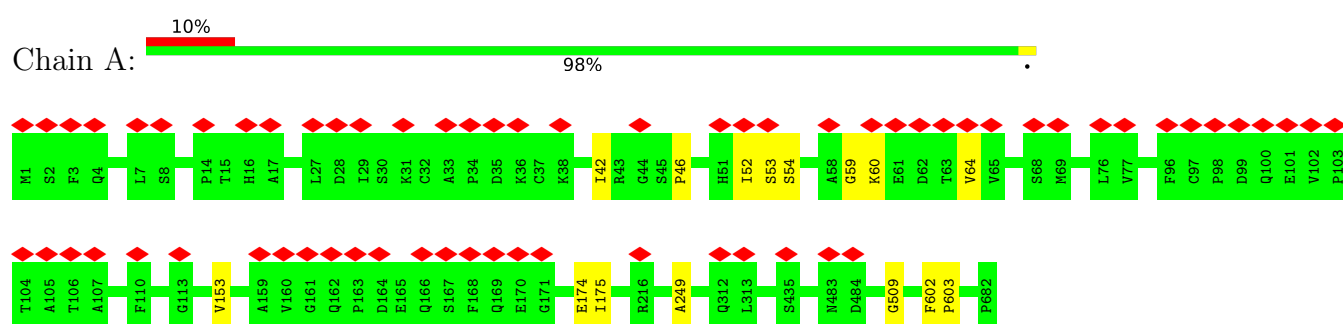
- Molecule 14 is a protein called F-box/WD repeat-containing protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	g	466	Total	C	N	O	0	0
			2312	1380	466	466		
14	e	466	Total	C	N	O	0	0
			2312	1380	466	466		

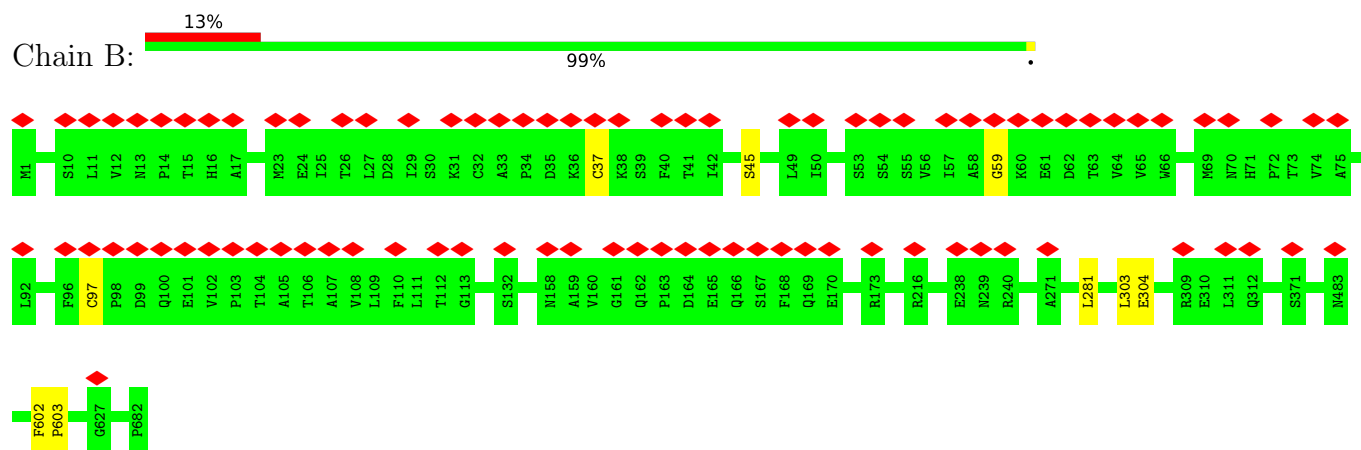
3 Residue-property plots [i](#)

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.

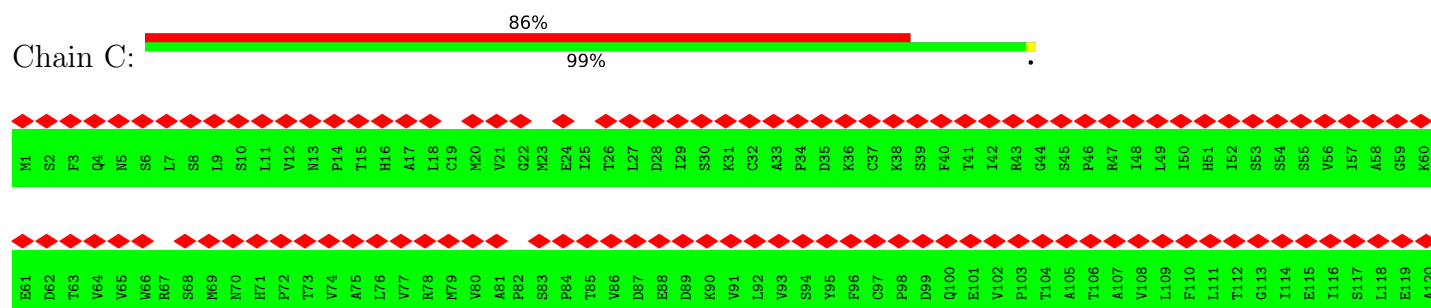
- Molecule 1: Inactive protein-arginine deiminase type-6

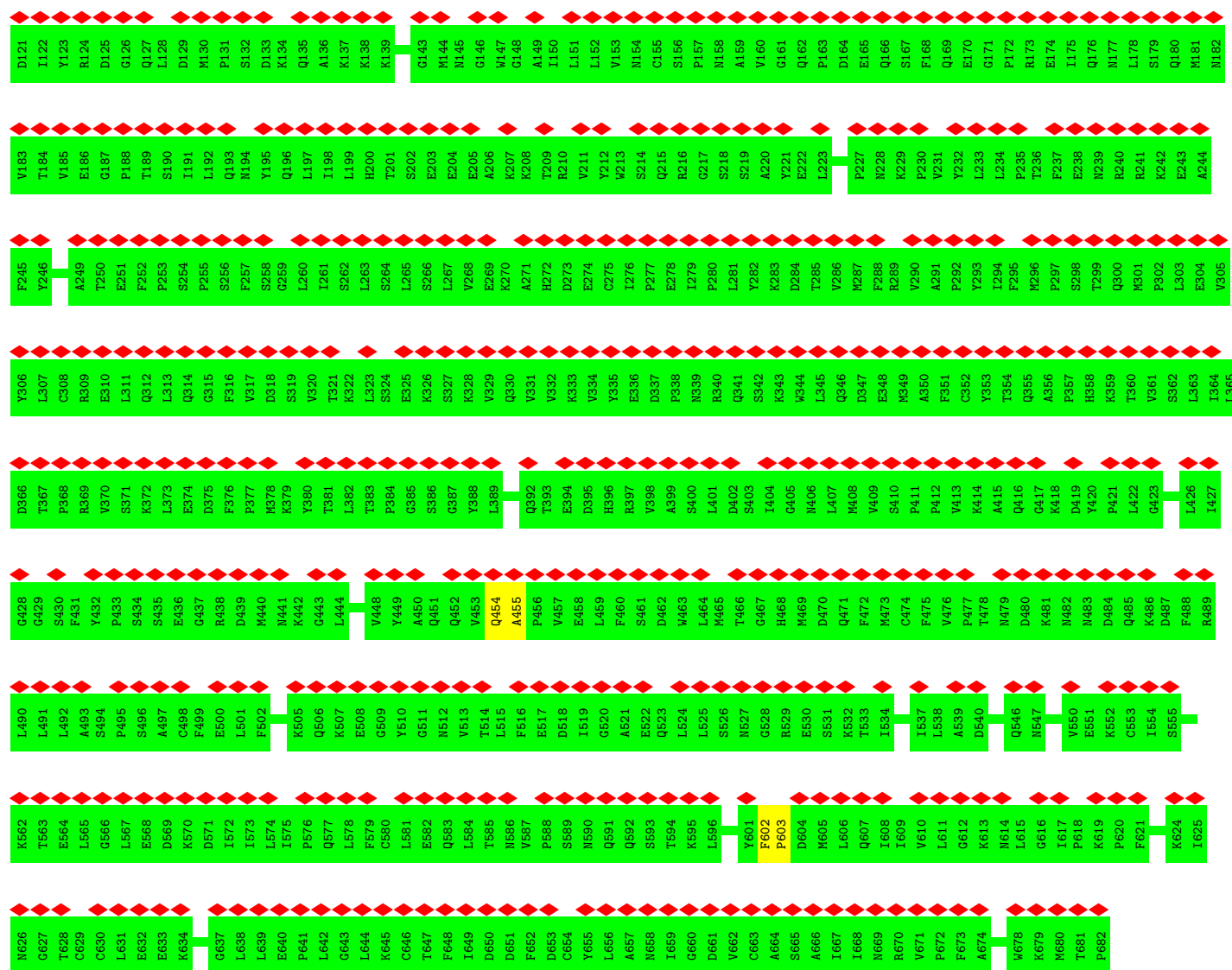


- Molecule 1: Inactive protein-arginine deiminase type-6

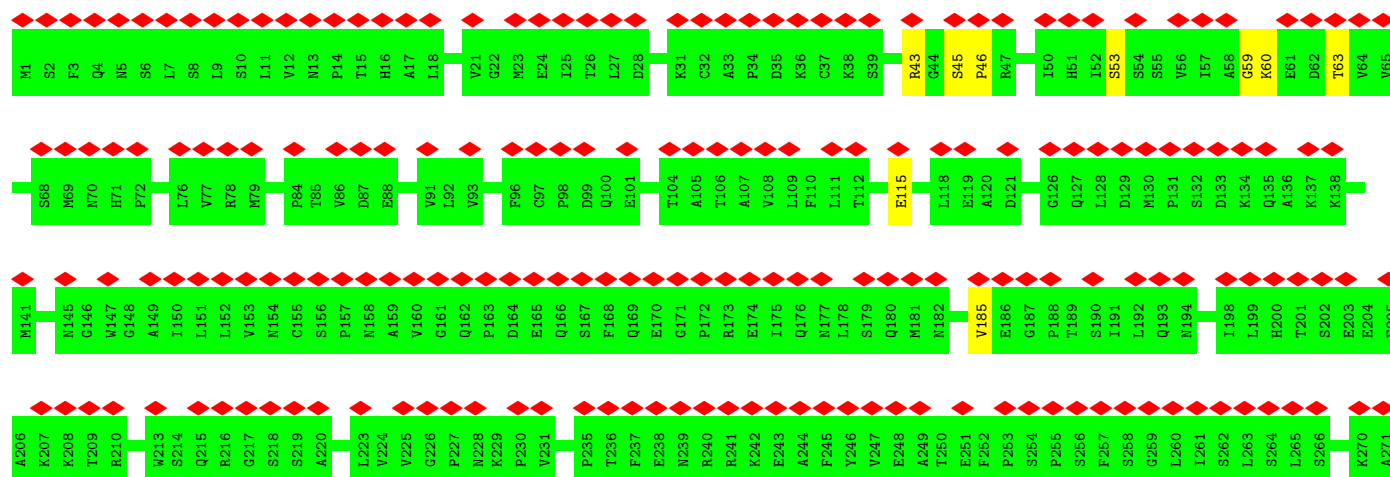
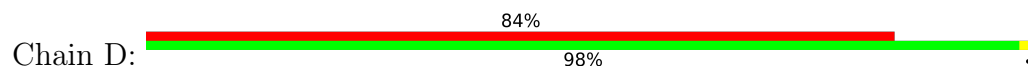


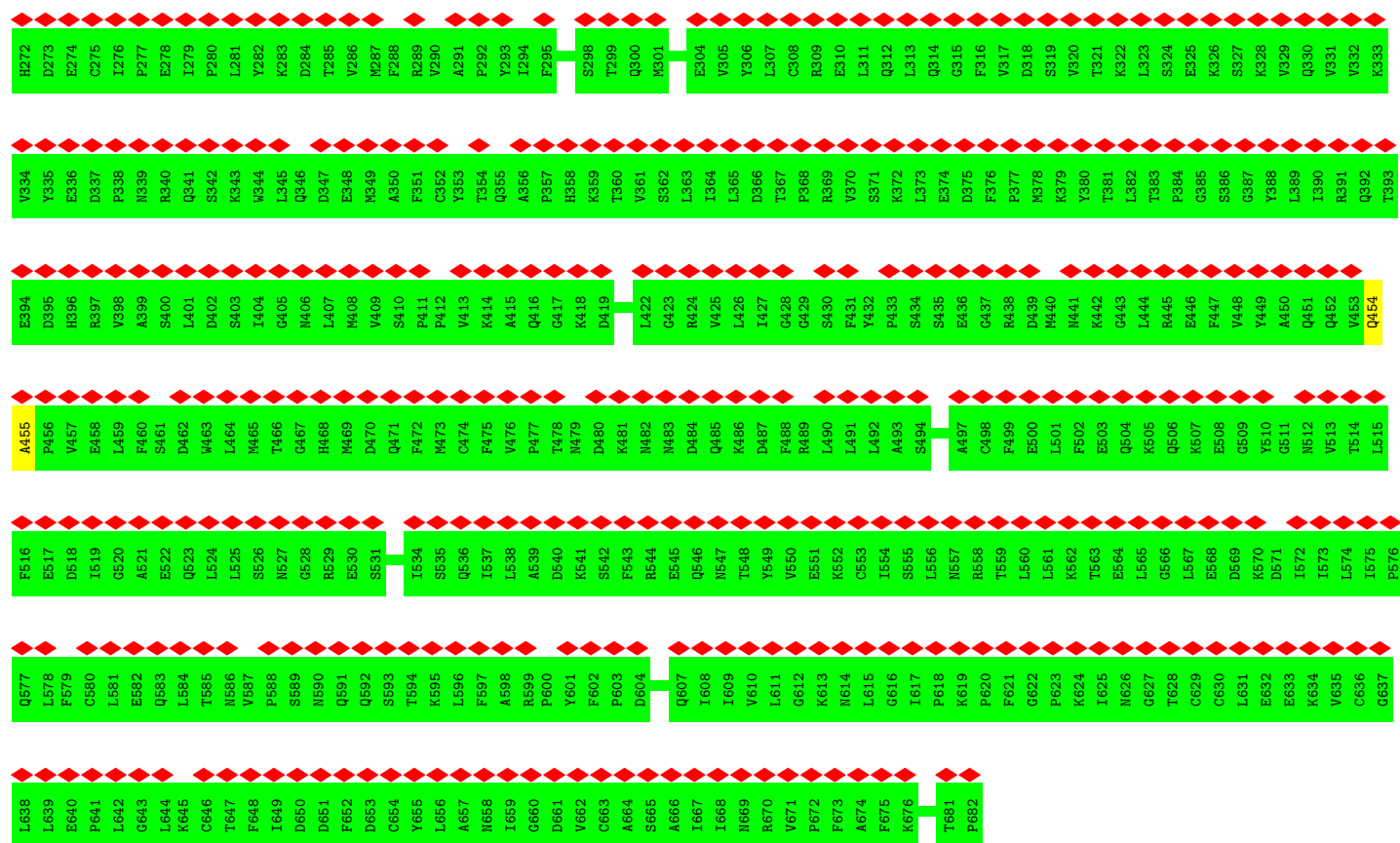
- Molecule 1: Inactive protein-arginine deiminase type-6



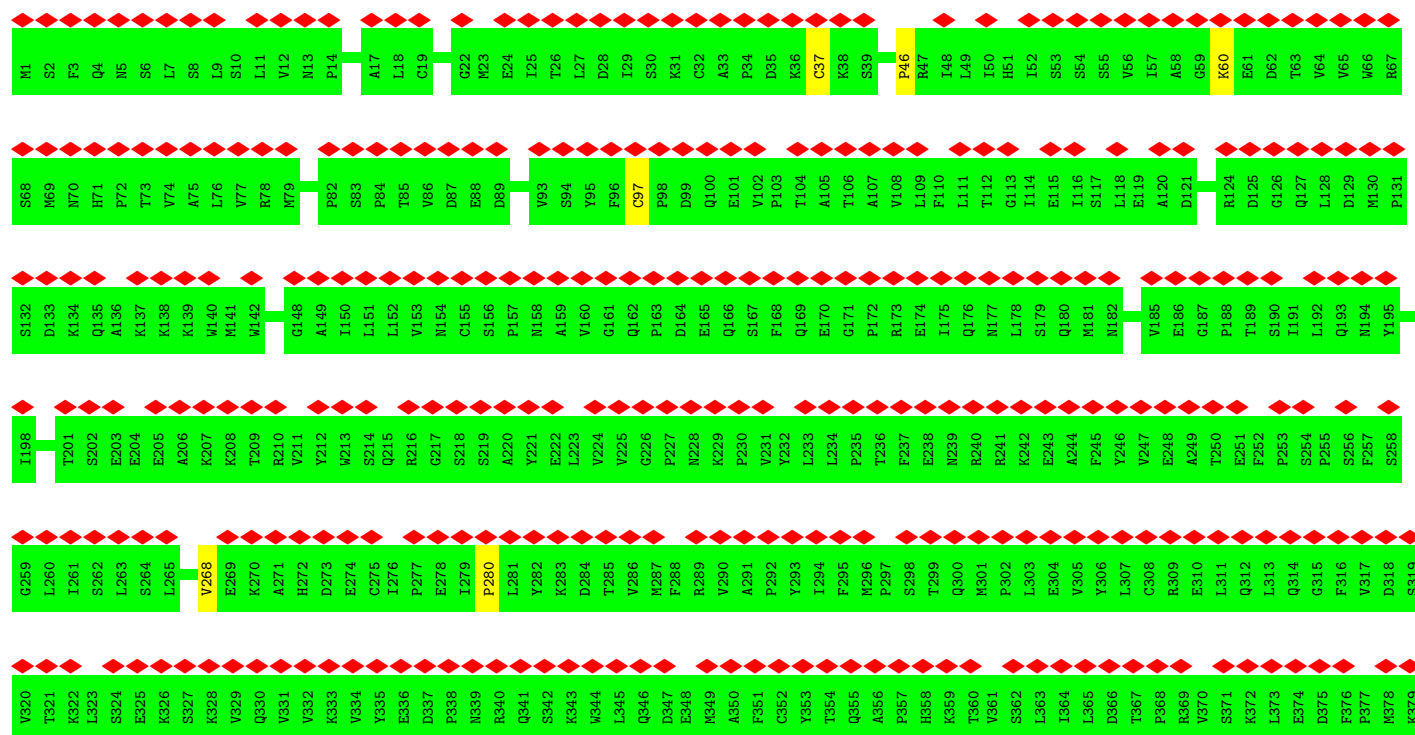
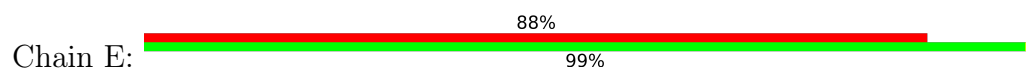


• Molecule 1: Inactive protein-arginine deiminase type-6



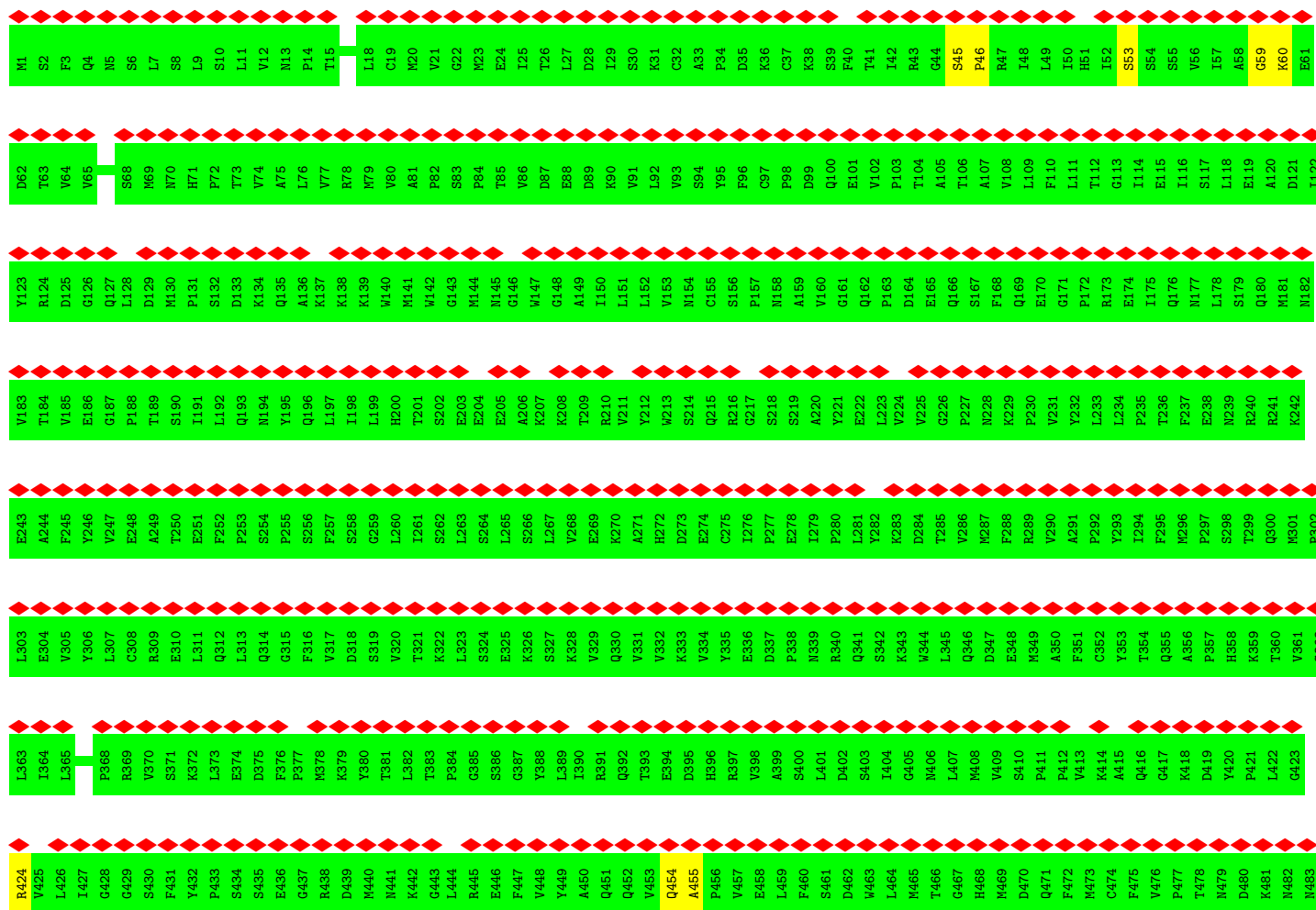


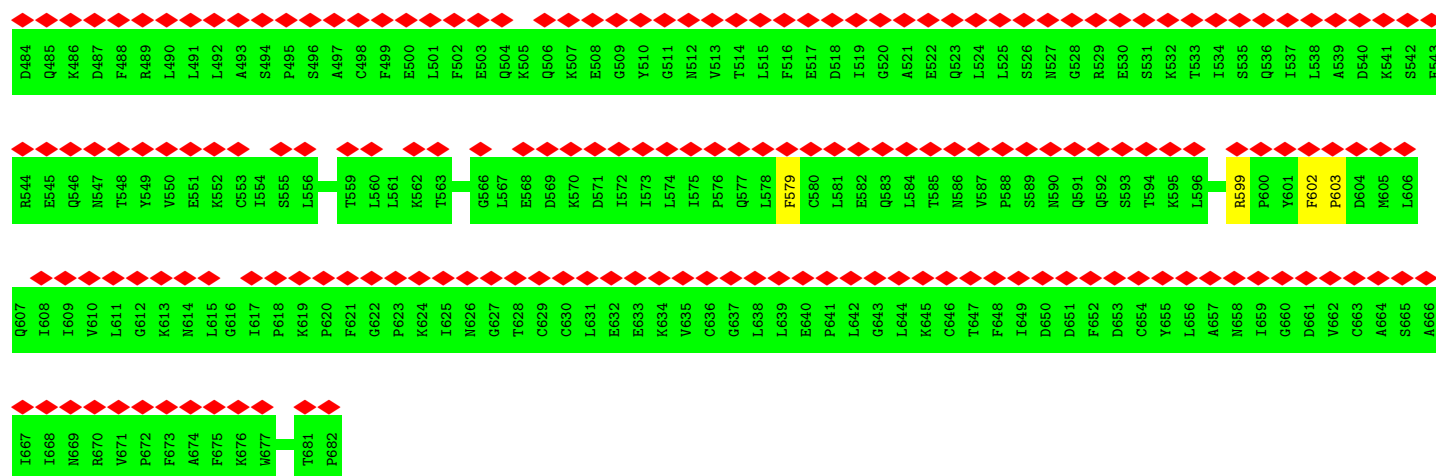
• Molecule 1: Inactive protein-arginine deiminase type-6





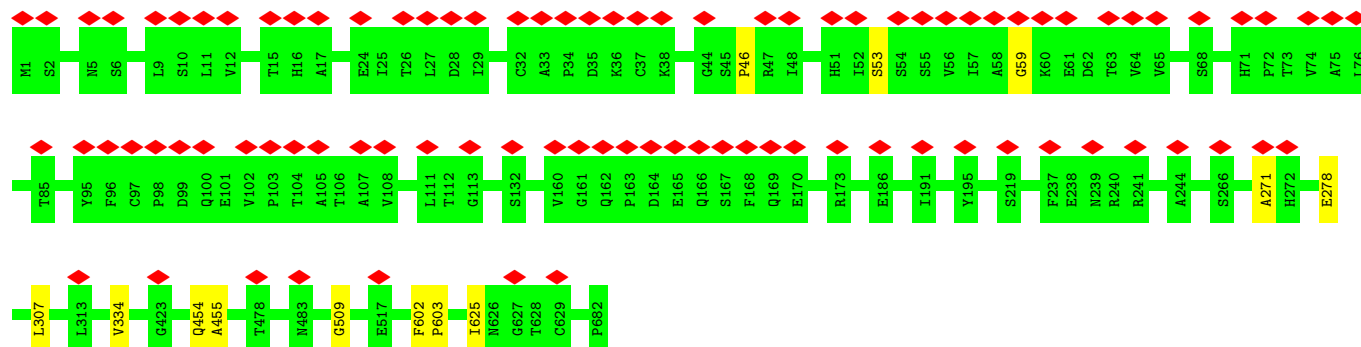
• Molecule 1: Inactive protein-arginine deiminase type-6





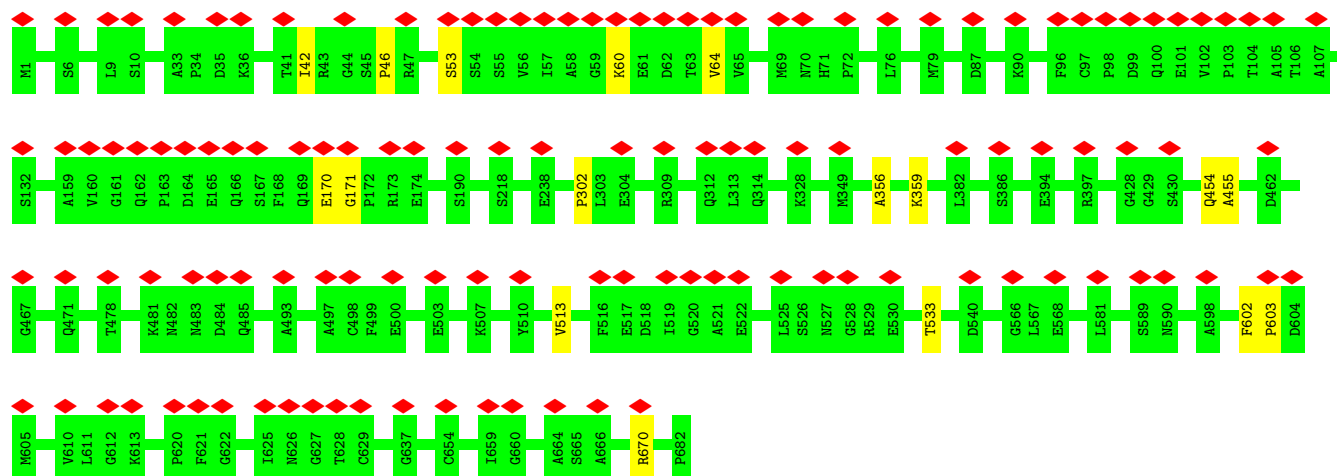
- Molecule 1: Inactive protein-arginine deiminase type-6

Chain G: 13% 98%

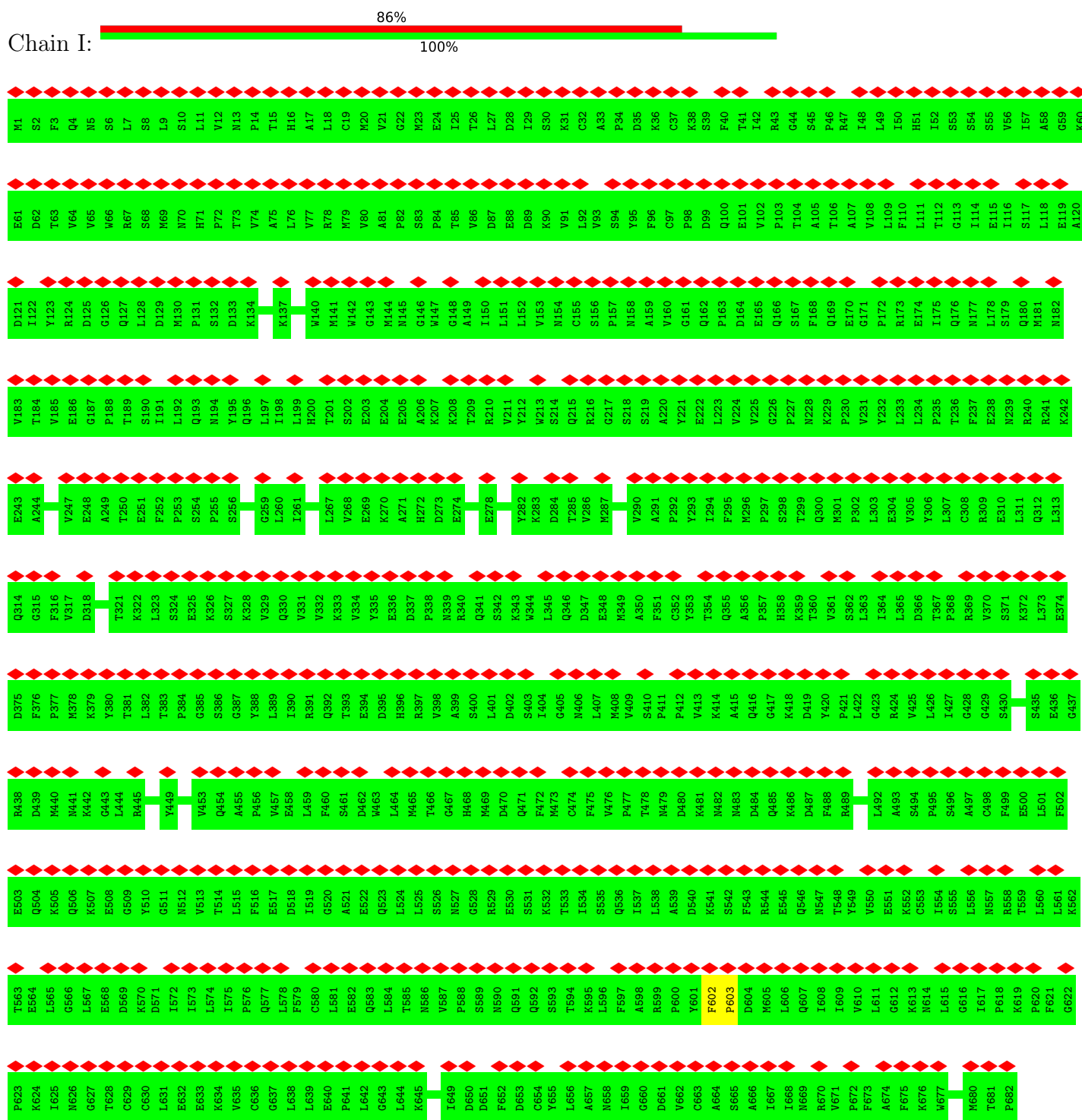


- Molecule 1: Inactive protein-arginine deiminase type-6

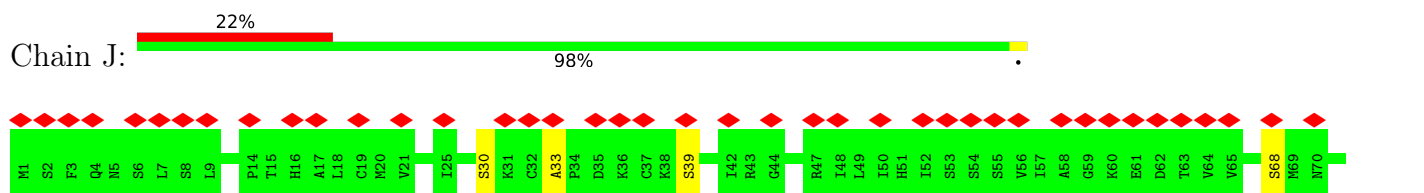
Chain H: 18% 98%

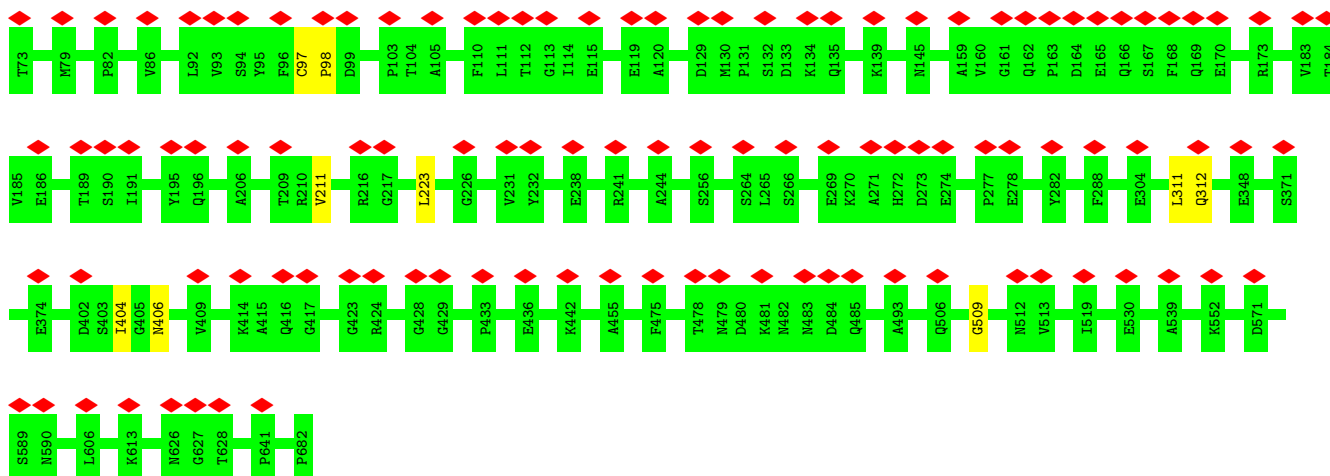


- Molecule 1: Inactive protein-arginine deiminase type-6

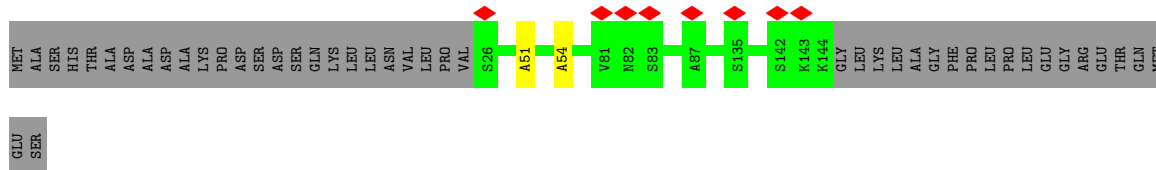


• Molecule 1: Inactive protein-arginine deiminase type-6

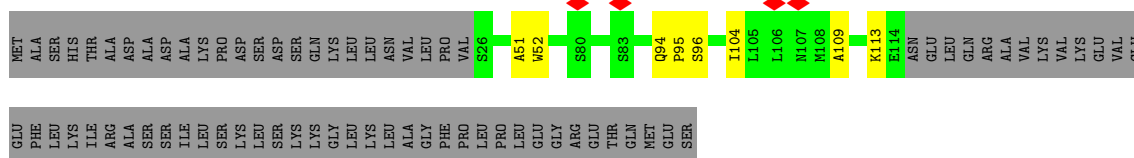




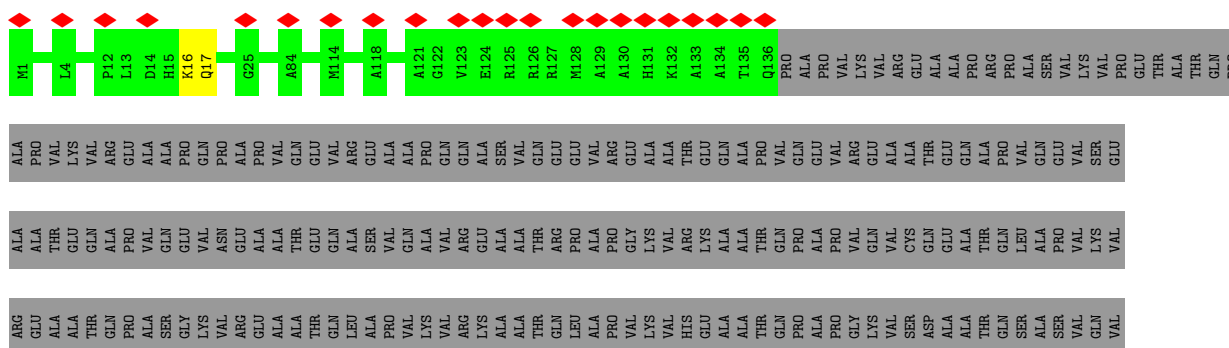
- Molecule 2: Oocyte-expressed protein homolog



- Molecule 2: Oocyte-expressed protein homolog



- Molecule 3: KH domain-containing protein 3



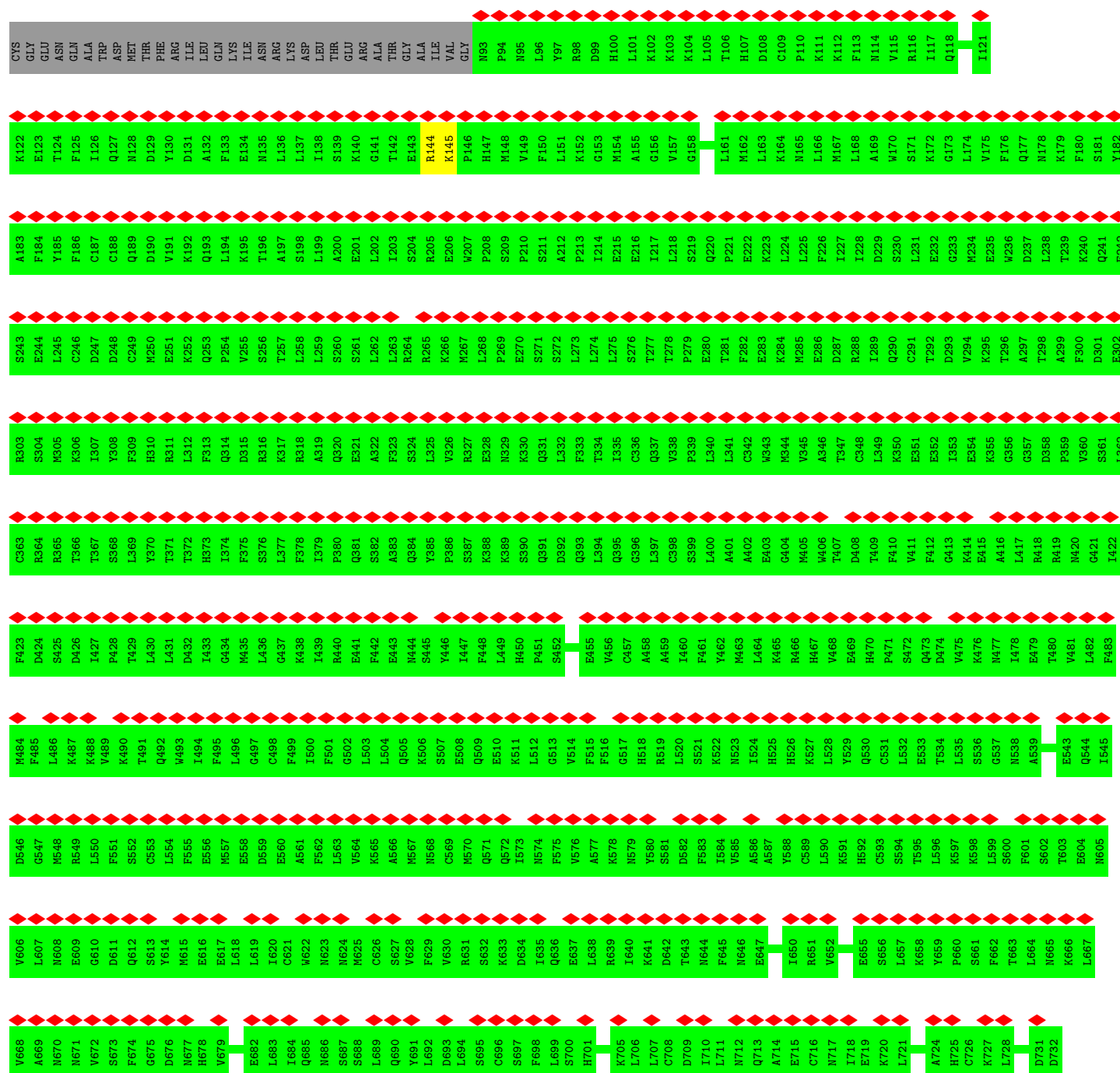
ARG GLU ALA SER PHE GLN THR LEU SER ASP MET GLY VAL LEU PHE GLU ALA THR ASP THR THR GLN SER LEU ALA GLN VAL ASP THR TYR ALA ASP GLU ALA PHE THR GLN ALA PRO HIS THR SER ALA ASN GLN VAL GLY THR THR GLY TRP GLU SER LEU

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

● Molecule 4: NLR family, pyrin domain containing 4F

Chain Y: 

MET ALA SER PHE GLN THR LEU PHE GLU ALA THR ASP THR THR GLN SER LEU ALA GLN VAL ASP THR TYR ALA ASP GLU ALA PHE THR GLN ALA PRO HIS THR SER ALA ASN GLN VAL GLY THR THR GLY TRP GLU SER LEU

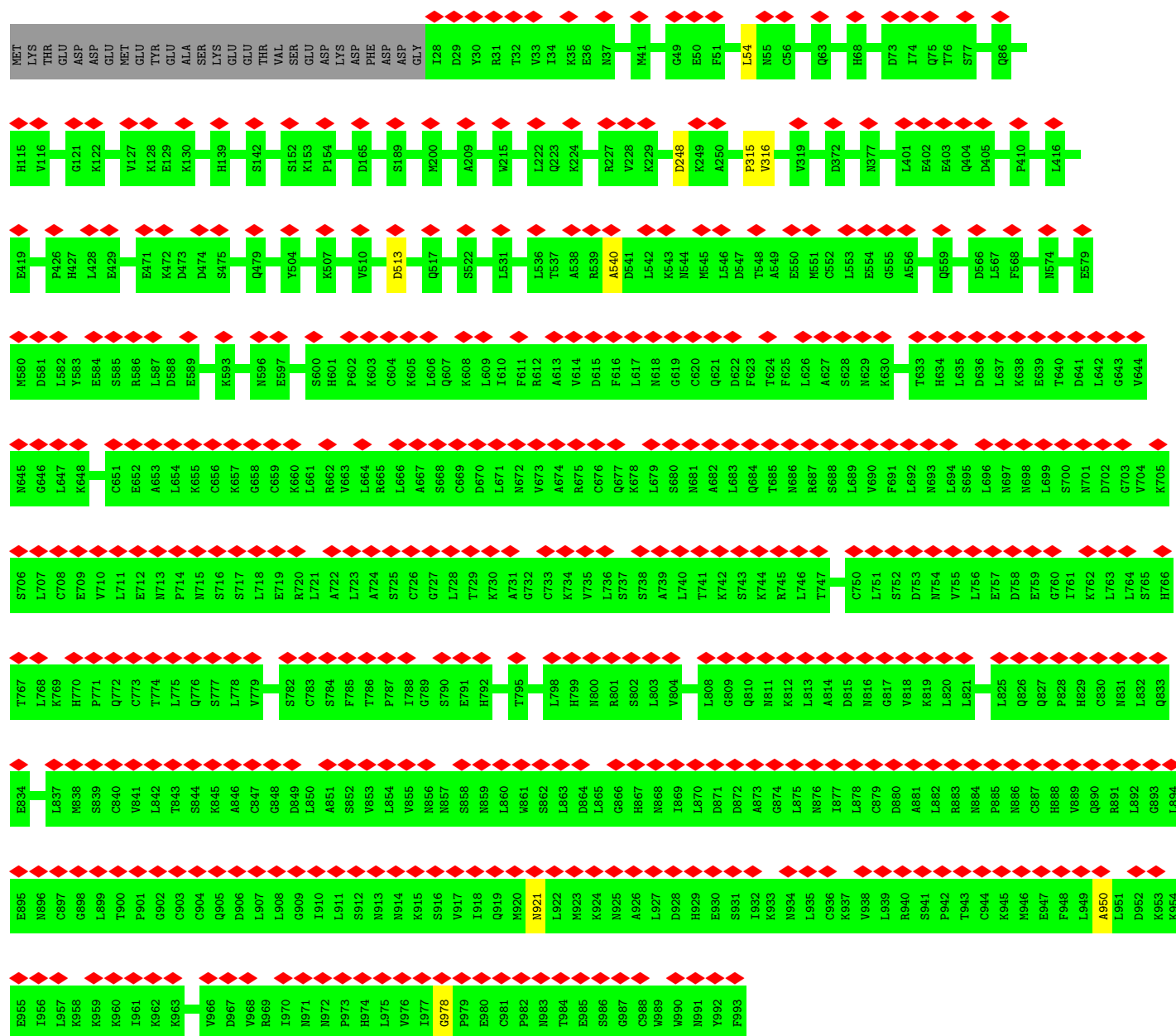






• Molecule 5: NACHT, LRR and PYD domains-containing protein 14

Chain Z: 45% 96%

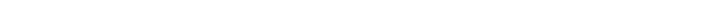


• Molecule 6: Ubiquitin-conjugating enzyme E2 D3

- [illegible]

- Chain h:
-
- 44%
- 100%
- M1
P2
T3
I4
K5
- S9
D10
G11
E12
I13
F14
- V18
E19
I20
A21
K22
Q23
S24
V25
T26
I27
K28
T29
M30
L31
E32
D33
L34
G35
M36
D37
D38
E39
G40
D41
D42
D43
P44
V45
P46
L47
P48
N49
V50
M51
A52
A53
I54
L55
K56
- T59
P70
P71
P72
F73
- D74
D75
E76
N77
K78
E79
- T82
D83
D84
V87
E91
V95
Y109
L110
D111
I112
K128
G129
K130
R136
K142
N143
W159
E162
K163

- Chain T: 
- | Position | Residue | Category |
|----------|---------|----------|
| 1 | VAL | Green |
| 2 | GLU | Green |
| 3 | GLN | Green |
| 4 | GLY | Green |
| 5 | PRO | Green |
| 6 | ARG | Green |
| 7 | HIS | Green |
| 8 | GLN | Green |
| 9 | LEU | Green |
| 10 | GLN | Green |
| 11 | VAL | Green |
| 12 | GLY | Green |
| 13 | ARG | Green |
| 14 | GLU | Green |
| 15 | ASP | Green |
| 16 | LEU | Green |
| 17 | SER | Green |
| 18 | LYS | Green |
| 19 | TRP | Green |
| 20 | GLY | Green |
| 21 | ASP | Green |
| 22 | ALA | Green |
| 23 | LEU | Green |
| 24 | ARG | Green |
| 25 | ASP | Green |
| 26 | ASN | Green |
| 27 | LEU | Green |
| 28 | GLY | Green |
| 29 | GLN | Green |
| 30 | GLY | Green |
| 31 | ARG | Green |
| 32 | GLY | Green |
| 33 | ALA | Green |
| 34 | GLN | Green |
| 35 | VAL | Green |
| 36 | PRO | Green |
| 37 | GLU | Green |
| 38 | PRO | Green |
| 39 | GLY | Green |
| 40 | PRO | Green |
| 41 | SER | Green |
| 42 | GLY | Green |
| 43 | PRO | Green |
| 44 | ARG | Green |
| 45 | ARG | Yellow |
| 46 | P46 | Yellow |
| 47 | A47 | Yellow |
| 48 | GLU | Green |
| 49 | LEU | Green |
| 50 | ALA | Green |
| 51 | PRO | Green |
| 52 | LEU | Green |
| 53 | LYS | Green |
| 54 | GLU | Green |
| 55 | MET | Green |
| 56 | GLN | Green |
| 57 | ALA | Green |
| 58 | ASP | Green |
| 59 | ILE | Green |
| 60 | LEU | Green |
| 61 | HIS | Green |
| 62 | ASP | Green |
| 63 | ASN | Green |
| 64 | ASN | Green |
| 65 | SER | Green |
| 66 | ASP | Green |
| 67 | ASN | Green |
| 68 | ASP | Green |
| 69 | MET | Green |
| 70 | VAL | Green |
| 71 | THR | Green |
| 72 | LYS | Green |
| 73 | VAL | Green |
| 74 | LEU | Green |
| 75 | LEU | Green |
| 76 | SER | Green |
| 77 | PRO | Green |
| 78 | THR | Green |
| 79 | PRO | Green |
| 80 | CYS | Green |
| 81 | PRO | Green |
| 82 | ALA | Green |
| 83 | ARG | Green |
| 84 | GLN | Green |
| 85 | ASP | Green |
| 86 | ALA | Green |
| 87 | SER | Green |
| 88 | SER | Green |
| 89 | PRO | Green |
| 90 | THR | Green |
| 91 | GLN | Green |
| 92 | LEU | Green |
| 93 | ALA | Green |
| 94 | VAL | Green |
| 95 | LEU | Green |
| 96 | LEU | Green |
| 97 | SER | Green |
| 98 | PRO | Green |
| 99 | PRO | Green |
| 100 | PRO | Green |

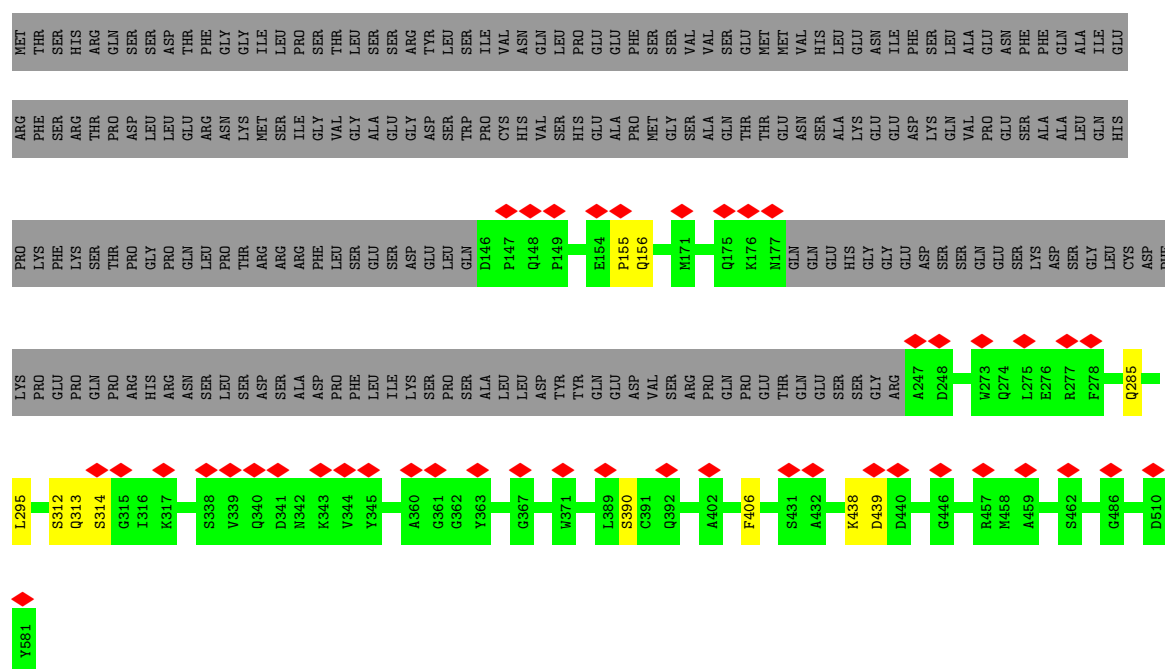
- Chain a:  36% 82% 17%



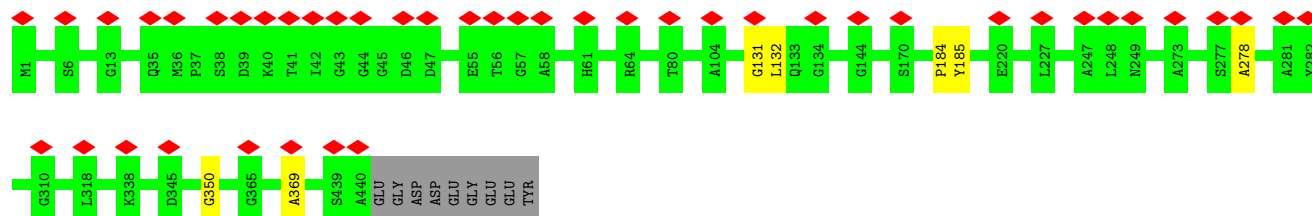




- Molecule 11: Transducin-like enhancer protein 6

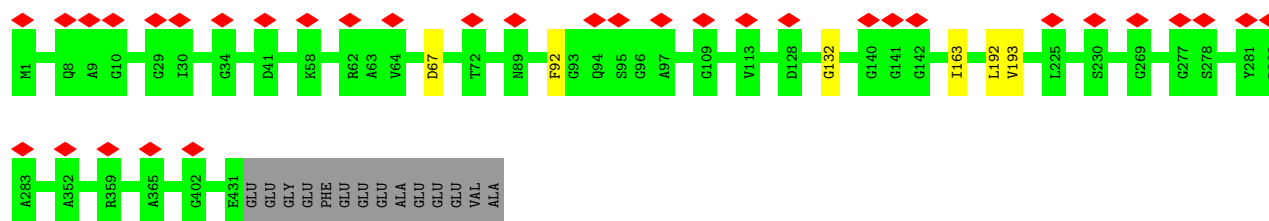


- Molecule 12: Tubulin alpha-1C chain

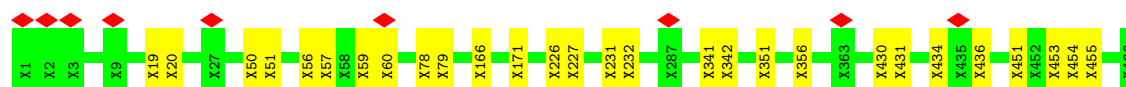
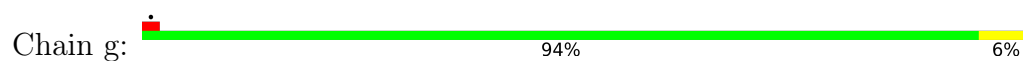


- Molecule 13: Tubulin beta-4B chain

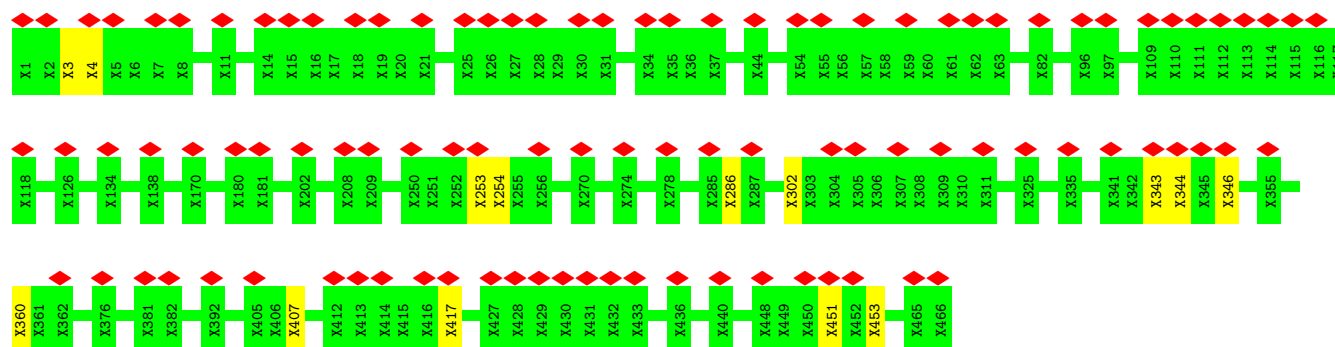




- Molecule 14: F-box/WD repeat-containing protein



- Molecule 14: F-box/WD repeat-containing protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	268774	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	115	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.213	Depositor
Minimum map value	-0.125	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.010	Depositor
Recommended contour level	0.04	Depositor
Map size (Å)	497.69998, 497.69998, 497.69998	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.185, 1.185, 1.185	Depositor

5 Model quality

5.1 Standard geometry

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	0.26	0/3372	0.49	0/4697
1	B	0.23	0/3372	0.47	0/4697
1	C	0.15	0/3372	0.43	0/4697
1	D	0.17	0/3372	0.45	0/4697
1	E	0.16	0/3372	0.46	0/4697
1	F	0.15	0/3372	0.44	0/4697
1	G	0.24	0/3372	0.50	0/4697
1	H	0.21	0/3372	0.50	0/4697
1	I	0.16	0/3372	0.43	0/4697
1	J	0.22	0/3372	0.52	0/4697
2	O	0.25	0/591	0.45	0/824
2	R	0.24	0/441	0.54	0/614
3	S	0.24	0/672	0.44	0/935
4	X	0.17	0/4641	0.45	0/6475
4	Y	0.17	0/4195	0.45	0/5854
5	Z	0.19	0/4793	0.46	0/6687
6	b	0.27	0/728	0.45	0/1014
7	f	0.17	0/808	0.42	0/1126
7	h	0.18	0/808	0.40	0/1126
8	T	0.22	0/310	0.51	0/430
9	a	0.20	0/3206	0.48	0/4454
10	M	0.24	0/4700	0.50	0/6551
10	P	0.24	0/4700	0.50	0/6551
11	N	0.23	0/1810	0.55	0/2517
11	Q	0.22	0/1810	0.52	0/2517
12	c	0.23	0/2166	0.47	0/3011
13	d	0.24	0/2120	0.49	0/2946
All	All	0.21	0/72219	0.47	0/100602

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
1	G	0	1
1	J	0	1
2	R	0	1
5	Z	0	1
9	a	0	1
11	N	0	2
All	All	0	9

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (9) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	509	GLY	Peptide
1	B	281	LEU	Peptide
1	G	509	GLY	Peptide
1	J	509	GLY	Peptide
11	N	297	LEU	Peptide
11	N	422	VAL	Peptide
2	R	104	ILE	Peptide
5	Z	248	ASP	Peptide
9	a	153	VAL	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3373	0	1454	9	0
1	B	3373	0	1454	4	0
1	C	3373	0	1454	2	0
1	D	3373	0	1454	6	0
1	E	3373	0	1454	5	0
1	F	3373	0	1454	6	0
1	G	3373	0	1454	5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	H	3373	0	1454	8	0
1	I	3373	0	1454	1	0
1	J	3373	0	1454	6	0
2	O	592	0	266	1	0
2	R	442	0	200	4	0
3	S	673	0	298	1	0
4	X	4643	0	2005	5	0
4	Y	4196	0	1802	2	0
5	Z	4794	0	2077	5	0
6	b	729	0	314	0	0
7	f	809	0	345	1	0
7	h	809	0	345	0	0
8	T	311	0	140	1	0
9	a	3211	0	1400	3	0
10	M	4702	0	2048	8	0
10	P	4702	0	2048	9	0
11	N	1812	0	802	1	0
11	Q	1812	0	802	6	0
12	c	2167	0	1009	4	0
13	d	2121	0	962	3	0
14	e	2312	0	490	7	0
14	g	2312	0	501	15	0
All	All	76879	0	32394	127	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 1.

All (127) 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)
12:c:278:ALA:HA	12:c:369:ALA:HB2	1.85	0.59
1:H:356:ALA:HB3	1:H:359:LYS:O	2.02	0.58
11:Q:295:LEU:HA	11:Q:571:ARG:O	2.07	0.54
13:d:132:GLY:HA3	13:d:163:ILE:O	2.07	0.54
14:e:343:UNK:O	14:e:344:UNK:C	2.55	0.53
1:D:46:PRO:HA	1:D:60:LYS:O	2.10	0.52
1:A:46:PRO:O	1:A:60:LYS:HA	2.10	0.52
14:g:453:UNK:O	14:g:454:UNK:C	2.59	0.51
1:A:602:PHE:O	1:A:603:PRO:C	2.55	0.50
1:C:454:GLN:O	1:C:455:ALA:C	2.55	0.49
1:E:268:VAL:HA	1:E:280:PRO:HA	1.93	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:97:CYS:O	1:J:98:PRO:C	2.55	0.49
1:A:42:ILE:O	1:A:64:VAL:HA	2.13	0.49
12:c:184:PRO:O	12:c:185:TYR:C	2.55	0.49
14:e:346:UNK:HA	14:e:360:UNK:C	2.43	0.49
1:H:302:PRO:HA	1:H:670:ARG:HA	1.95	0.48
4:X:207:TRP:CB	4:X:212:ALA:HB2	2.42	0.48
10:P:598:ILE:O	10:P:650:SER:HA	2.13	0.48
2:R:95:PRO:O	2:R:96:SER:C	2.55	0.48
14:g:231:UNK:O	14:g:232:UNK:C	2.60	0.48
10:P:144:HIS:HA	10:P:268:THR:O	2.14	0.48
1:B:602:PHE:O	1:B:603:PRO:C	2.56	0.48
1:D:45:SER:O	1:D:60:LYS:HA	2.14	0.48
10:P:231:HIS:O	10:P:232:ASP:C	2.57	0.48
1:H:46:PRO:HA	1:H:60:LYS:HA	1.96	0.47
14:g:351:UNK:HA	14:g:356:UNK:O	2.15	0.47
8:T:46:PRO:O	8:T:47:ALA:C	2.57	0.47
14:g:56:UNK:O	14:g:57:UNK:C	2.63	0.47
2:R:109:ALA:O	2:R:113:LYS:N	2.47	0.47
1:C:602:PHE:O	1:C:603:PRO:C	2.58	0.46
10:P:847:ASN:O	10:P:875:THR:O	2.33	0.46
14:g:430:UNK:O	14:g:431:UNK:C	2.63	0.46
1:E:46:PRO:HA	1:E:60:LYS:HA	1.96	0.46
1:E:602:PHE:O	1:E:603:PRO:C	2.59	0.46
1:H:42:ILE:O	1:H:64:VAL:HA	2.16	0.46
14:e:3:UNK:O	14:e:4:UNK:C	2.65	0.45
1:G:271:ALA:HB2	1:G:278:GLU:N	2.31	0.45
1:G:454:GLN:O	1:G:455:ALA:C	2.58	0.45
1:G:602:PHE:O	1:G:603:PRO:C	2.59	0.45
14:g:50:UNK:O	14:g:51:UNK:C	2.64	0.45
5:Z:54:LEU:HA	12:c:350:GLY:HA2	1.99	0.45
9:a:33:GLU:O	9:a:37:HIS:HA	2.17	0.45
1:D:115:GLU:O	1:D:185:VAL:HA	2.16	0.45
14:e:286:UNK:HA	14:e:302:UNK:O	2.17	0.45
2:R:94:GLN:O	2:R:95:PRO:C	2.59	0.45
5:Z:921:ASN:HA	5:Z:950:ALA:HB3	1.98	0.45
11:Q:438:LYS:O	11:Q:439:ASP:C	2.59	0.44
1:A:46:PRO:HA	1:A:59:GLY:O	2.18	0.44
1:I:602:PHE:O	1:I:603:PRO:C	2.61	0.44
2:O:51:ALA:O	2:O:54:ALA:HB3	2.18	0.44
7:f:5:LYS:O	7:f:44:PRO:HA	2.17	0.44
14:g:454:UNK:O	14:g:455:UNK:C	2.64	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:e:451:UNK:C	14:e:453:UNK:N	2.78	0.44
10:M:148:GLY:O	10:M:329:ALA:HB1	2.18	0.44
13:d:192:LEU:O	13:d:193:VAL:C	2.61	0.44
1:J:404:ILE:C	1:J:406:ASN:H	2.25	0.44
11:Q:285:GLN:O	11:Q:577:TYR:HA	2.17	0.44
1:A:46:PRO:HA	1:A:60:LYS:HA	2.00	0.44
5:Z:513:ASP:HA	5:Z:540:ALA:HB2	1.99	0.44
1:E:37:CYS:HA	1:E:97:CYS:HA	2.00	0.43
1:J:30:SER:HA	1:J:33:ALA:HB3	1.99	0.43
9:a:718:GLU:O	9:a:719:LEU:C	2.61	0.43
10:M:672:GLN:HA	10:M:698:LEU:HA	1.99	0.43
4:X:8:PHE:O	4:X:9:GLY:C	2.59	0.43
11:N:160:GLY:O	11:N:161:PHE:C	2.59	0.43
14:g:166:UNK:HA	14:g:171:UNK:O	2.18	0.43
1:B:303:LEU:O	1:B:304:GLU:C	2.61	0.43
1:E:424:ARG:HA	1:E:454:GLN:O	2.19	0.43
10:P:1055:ASN:O	10:P:1056:TRP:C	2.62	0.43
1:A:153:VAL:HA	1:A:249:ALA:O	2.18	0.43
4:Y:144:ARG:O	4:Y:145:LYS:C	2.62	0.43
10:M:211:GLN:O	10:M:212:PRO:C	2.60	0.43
1:A:46:PRO:O	1:A:60:LYS:CA	2.66	0.43
1:F:602:PHE:O	1:F:603:PRO:C	2.58	0.43
4:X:5:ILE:O	4:X:6:SER:C	2.62	0.43
14:g:19:UNK:O	14:g:20:UNK:C	2.66	0.43
1:H:513:VAL:O	1:H:533:THR:HA	2.18	0.43
1:D:43:ARG:HA	1:D:63:THR:O	2.19	0.43
10:M:404:VAL:O	10:M:440:TYR:O	2.37	0.43
10:P:649:ASP:HA	10:P:679:ALA:HB2	2.01	0.43
1:G:307:LEU:O	1:G:334:VAL:N	2.51	0.42
1:H:454:GLN:O	1:H:455:ALA:C	2.62	0.42
14:g:59:UNK:O	14:g:60:UNK:C	2.67	0.42
12:c:131:GLY:O	12:c:132:LEU:C	2.63	0.42
1:D:454:GLN:O	1:D:455:ALA:C	2.62	0.42
10:M:874:LEU:O	10:M:903:LEU:HA	2.19	0.42
10:P:817:LEU:O	10:P:846:LEU:HA	2.19	0.42
1:A:174:GLU:O	1:A:175:ILE:C	2.63	0.42
1:F:454:GLN:O	1:F:455:ALA:C	2.63	0.42
1:B:37:CYS:HA	1:B:97:CYS:HA	2.02	0.41
4:X:513:GLY:HA2	4:X:517:GLY:CA	2.50	0.41
14:g:434:UNK:C	14:g:436:UNK:N	2.82	0.41
1:D:59:GLY:O	1:D:60:LYS:C	2.63	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:170:GLU:O	1:H:171:GLY:C	2.62	0.41
5:Z:315:PRO:O	5:Z:316:VAL:C	2.63	0.41
14:e:407:UNK:HA	14:e:417:UNK:O	2.20	0.41
1:J:211:VAL:O	1:J:223:LEU:HA	2.20	0.41
1:H:602:PHE:O	1:H:603:PRO:C	2.62	0.41
4:Y:837:SER:HA	4:Y:865:SER:O	2.21	0.41
10:M:538:SER:O	10:M:539:PRO:C	2.63	0.41
2:R:51:ALA:O	2:R:52:TRP:C	2.63	0.41
4:X:299:ALA:O	4:X:300:PHE:C	2.63	0.41
10:P:728:GLU:HA	10:P:755:LEU:HA	2.02	0.41
11:Q:155:PRO:O	11:Q:156:GLN:C	2.63	0.41
11:Q:390:SER:O	11:Q:406:PHE:HA	2.20	0.41
10:M:970:CYS:O	10:M:974:SER:N	2.53	0.41
1:J:311:LEU:O	1:J:312:GLN:C	2.63	0.41
3:S:16:LYS:O	3:S:17:GLN:C	2.63	0.41
14:g:451:UNK:C	14:g:453:UNK:N	2.80	0.41
14:e:253:UNK:O	14:e:254:UNK:C	2.68	0.41
1:B:45:SER:O	1:B:59:GLY:HA3	2.21	0.41
1:F:46:PRO:HA	1:F:60:LYS:HA	2.03	0.41
1:J:39:SER:HA	1:J:68:SER:HA	2.03	0.41
10:M:189:SER:HA	10:M:242:ASP:O	2.20	0.41
11:Q:312:SER:O	11:Q:314:SER:N	2.54	0.41
14:g:226:UNK:O	14:g:227:UNK:C	2.67	0.41
1:F:579:PHE:HA	1:F:599:ARG:O	2.22	0.41
5:Z:950:ALA:HA	5:Z:978:GLY:O	2.21	0.41
9:a:566:VAL:O	9:a:567:LYS:C	2.62	0.40
13:d:67:ASP:O	13:d:92:PHE:HA	2.21	0.40
1:F:45:SER:O	1:F:59:GLY:HA3	2.21	0.40
1:G:46:PRO:HA	1:G:59:GLY:O	2.22	0.40
14:g:78:UNK:O	14:g:79:UNK:C	2.68	0.40
1:A:52:ILE:O	1:A:54:SER:N	2.54	0.40
1:F:424:ARG:HA	1:F:454:GLN:O	2.22	0.40
10:P:903:LEU:O	10:P:931:LEU:HA	2.22	0.40
14:g:341:UNK:O	14:g:342:UNK:C	2.70	0.40

There are no symmetry-related clashes.

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	A	680/682 (100%)	619 (91%)	60 (9%)	1 (0%)	48	83
1	B	680/682 (100%)	633 (93%)	47 (7%)	0	100	100
1	C	680/682 (100%)	647 (95%)	33 (5%)	0	100	100
1	D	680/682 (100%)	639 (94%)	40 (6%)	1 (0%)	48	83
1	E	680/682 (100%)	641 (94%)	39 (6%)	0	100	100
1	F	680/682 (100%)	653 (96%)	26 (4%)	1 (0%)	48	83
1	G	680/682 (100%)	640 (94%)	38 (6%)	2 (0%)	36	72
1	H	680/682 (100%)	635 (93%)	44 (6%)	1 (0%)	48	83
1	I	680/682 (100%)	653 (96%)	27 (4%)	0	100	100
1	J	680/682 (100%)	639 (94%)	41 (6%)	0	100	100
2	O	117/164 (71%)	110 (94%)	7 (6%)	0	100	100
2	R	87/164 (53%)	77 (88%)	10 (12%)	0	100	100
3	S	134/440 (30%)	127 (95%)	7 (5%)	0	100	100
4	X	931/937 (99%)	879 (94%)	51 (6%)	1 (0%)	48	83
4	Y	843/937 (90%)	794 (94%)	48 (6%)	1 (0%)	48	83
5	Z	964/993 (97%)	919 (95%)	45 (5%)	0	100	100
6	b	145/147 (99%)	133 (92%)	12 (8%)	0	100	100
7	f	161/163 (99%)	153 (95%)	8 (5%)	0	100	100
7	h	161/163 (99%)	158 (98%)	3 (2%)	0	100	100
8	T	61/228 (27%)	54 (88%)	7 (12%)	0	100	100
9	a	641/782 (82%)	596 (93%)	44 (7%)	1 (0%)	43	78
10	M	945/1163 (81%)	878 (93%)	67 (7%)	0	100	100
10	P	945/1163 (81%)	877 (93%)	68 (7%)	0	100	100
11	N	363/581 (62%)	305 (84%)	58 (16%)	0	100	100
11	Q	363/581 (62%)	316 (87%)	46 (13%)	1 (0%)	36	72

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
12	c	438/449 (98%)	418 (95%)	20 (5%)	0	100	100
13	d	429/445 (96%)	410 (96%)	19 (4%)	0	100	100
All	All	14528/16320 (89%)	13603 (94%)	915 (6%)	10 (0%)	49	83

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	Y	926	PHE
4	X	926	PHE
1	A	53	SER
1	D	53	SER
1	F	53	SER
1	G	53	SER
1	G	625	ILE
11	Q	313	GLN
1	H	53	SER
9	a	154	GLN

5.3.2 Protein sidechains [i](#)

There are no protein residues with a non-rotameric sidechain to report in this entry.

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](#)

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

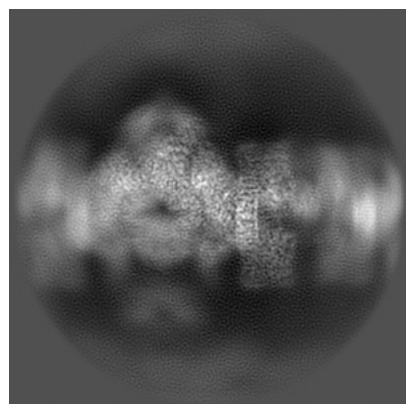
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-55603. These allow visual inspection of the internal detail of the map and identification of artifacts.

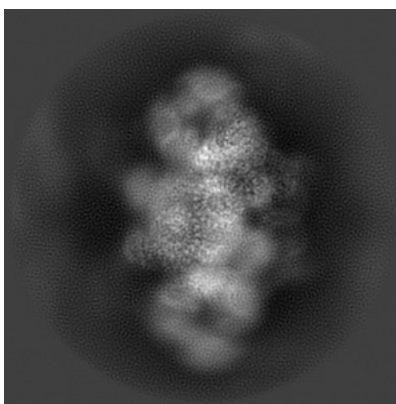
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

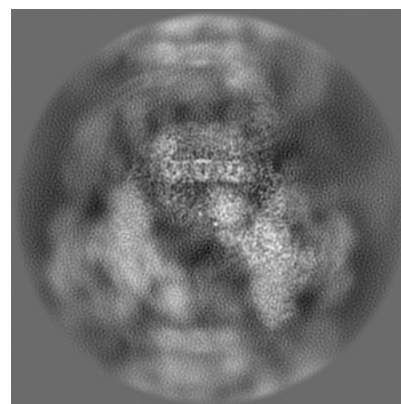
6.1.1 Primary map



X

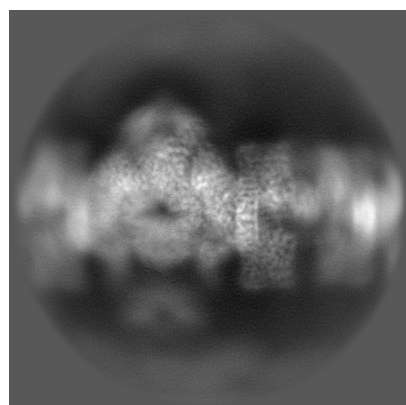


Y

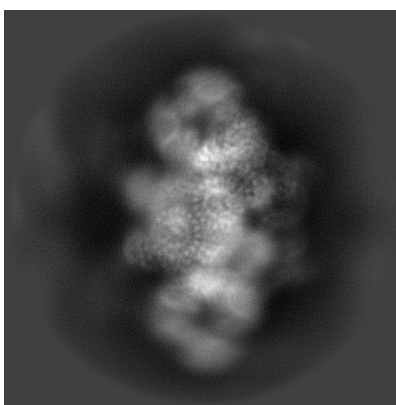


Z

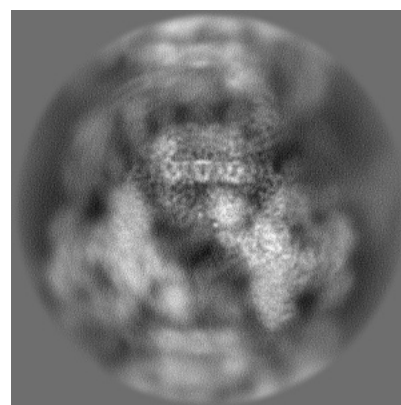
6.1.2 Raw map



X



Y

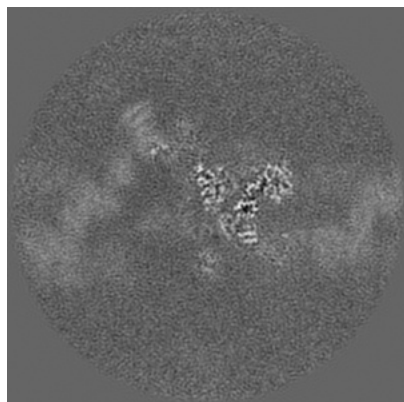


Z

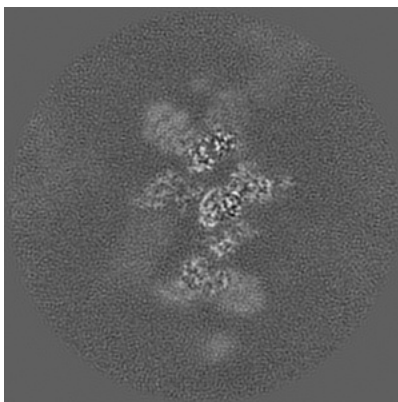
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

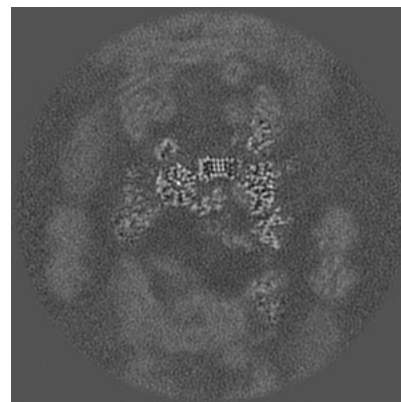
6.2.1 Primary map



X Index: 210

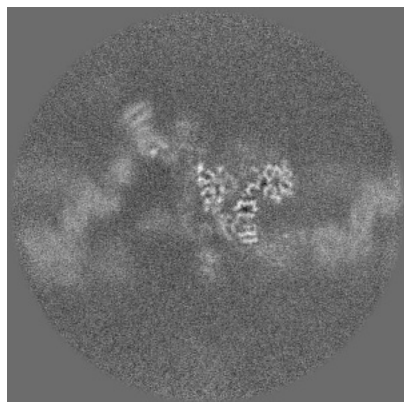


Y Index: 210

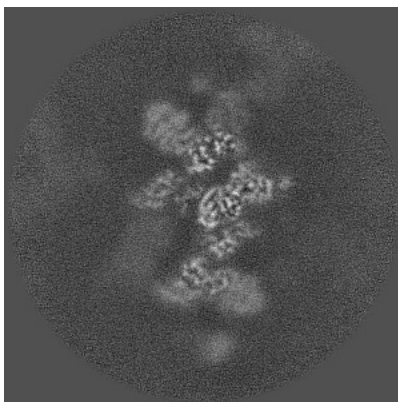


Z Index: 210

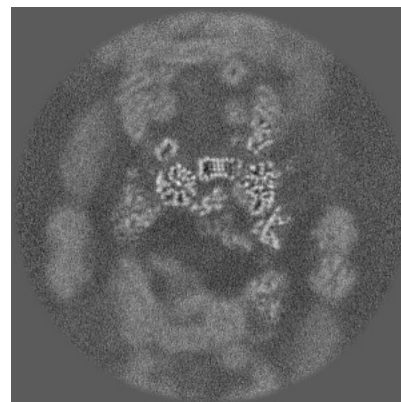
6.2.2 Raw map



X Index: 210



Y Index: 210

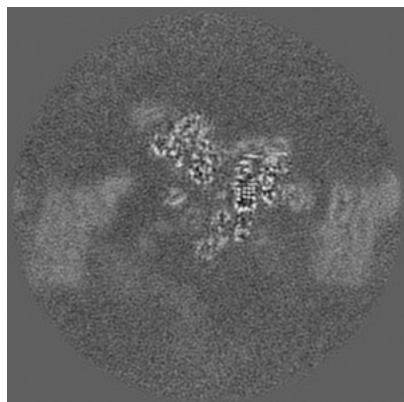


Z Index: 210

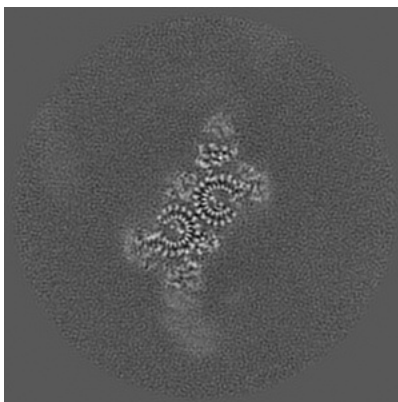
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

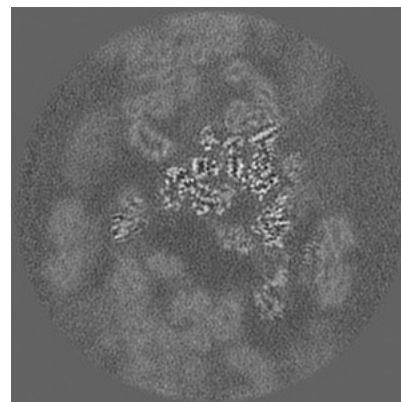
6.3.1 Primary map



X Index: 232

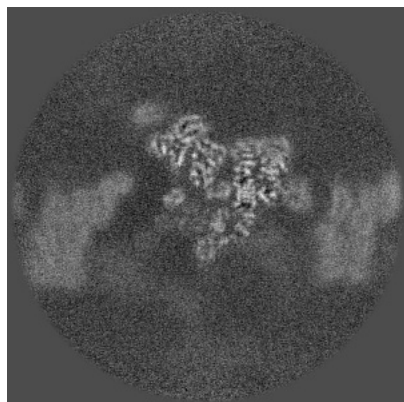


Y Index: 250

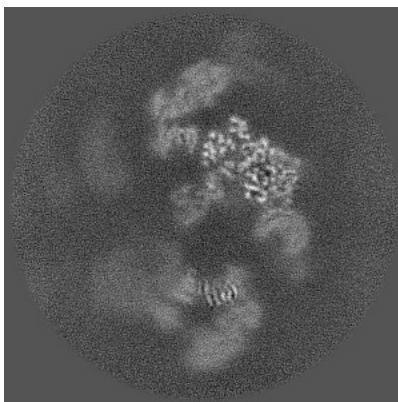


Z Index: 221

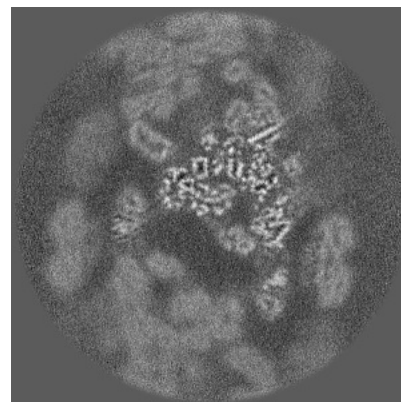
6.3.2 Raw map



X Index: 230



Y Index: 182

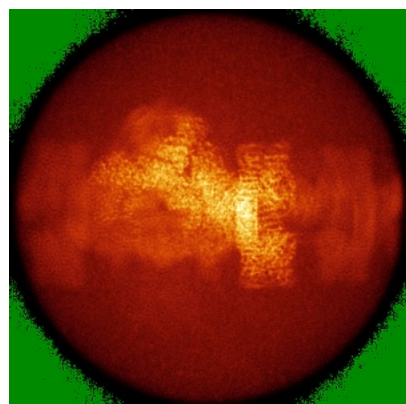


Z Index: 220

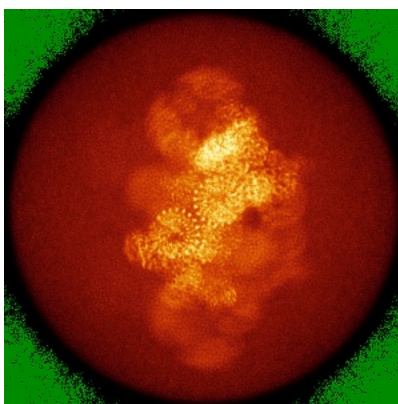
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

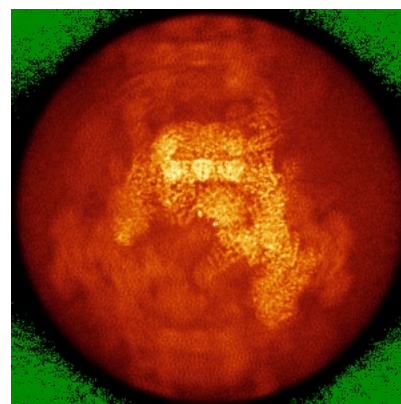
6.4.1 Primary map



X

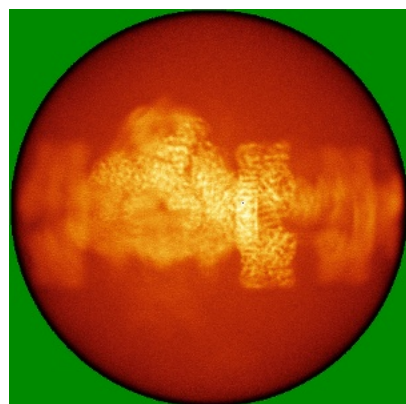


Y

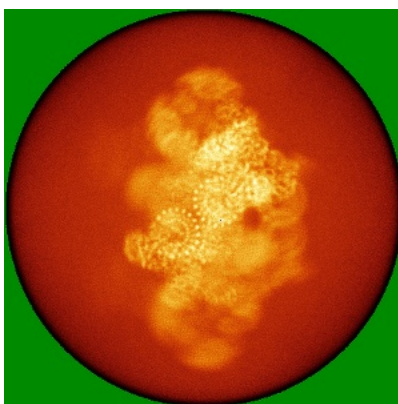


Z

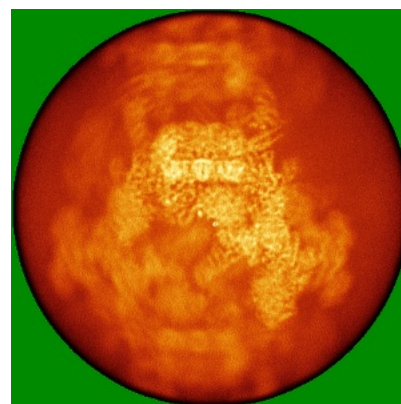
6.4.2 Raw map



X



Y

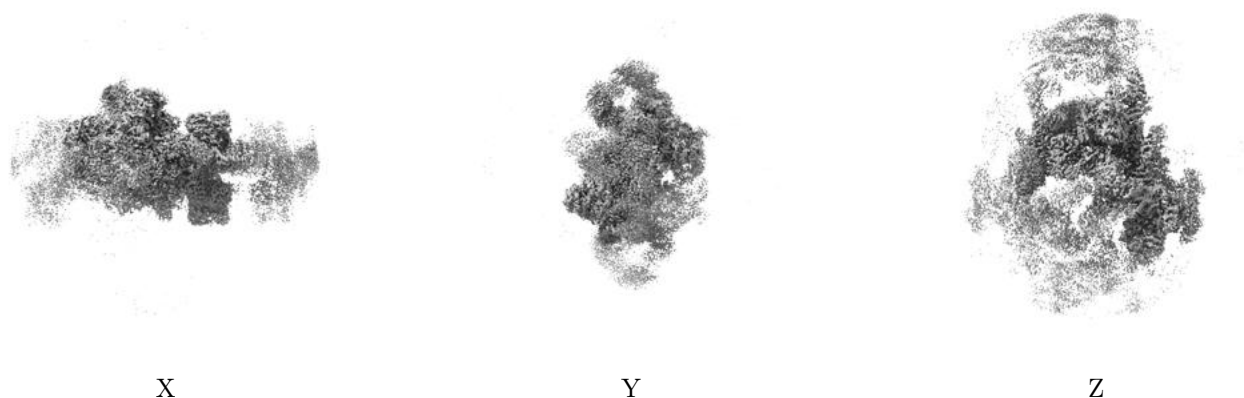


Z

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

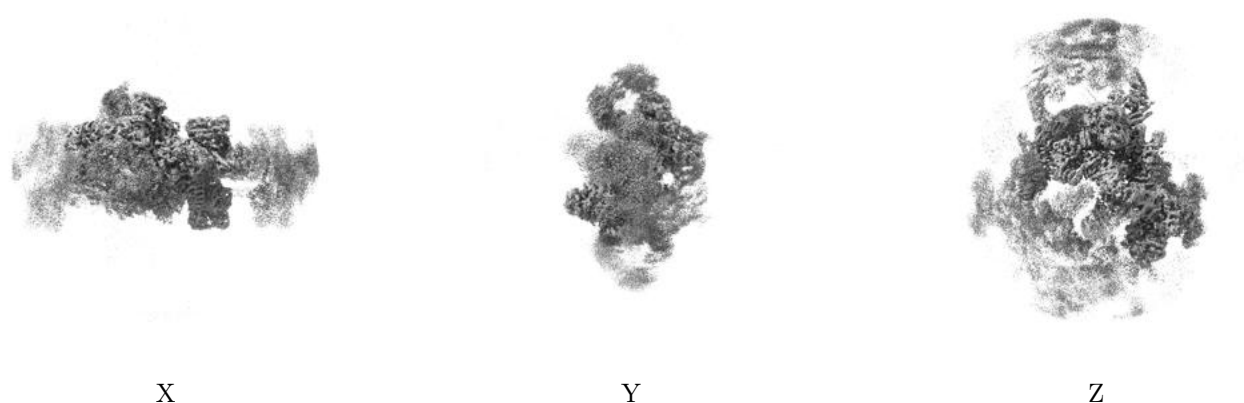
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.04. 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



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.

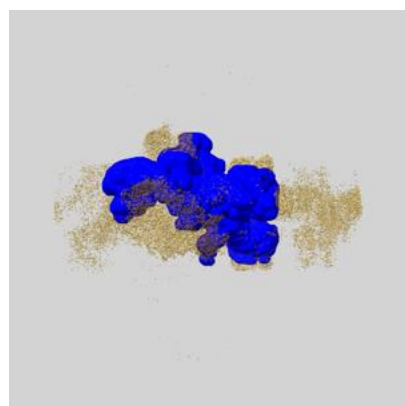
6.6 Mask visualisation [i](#)

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

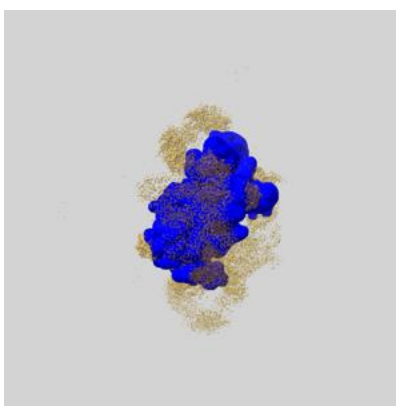
A mask typically either:

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

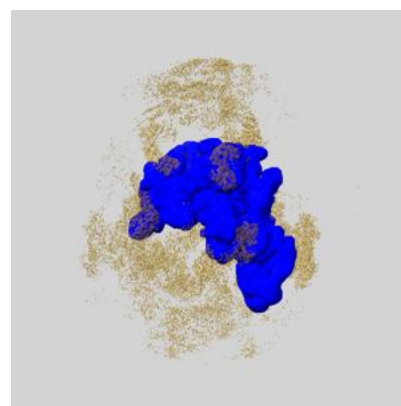
6.6.1 emd_55603_msk_1.map [i](#)



X



Y

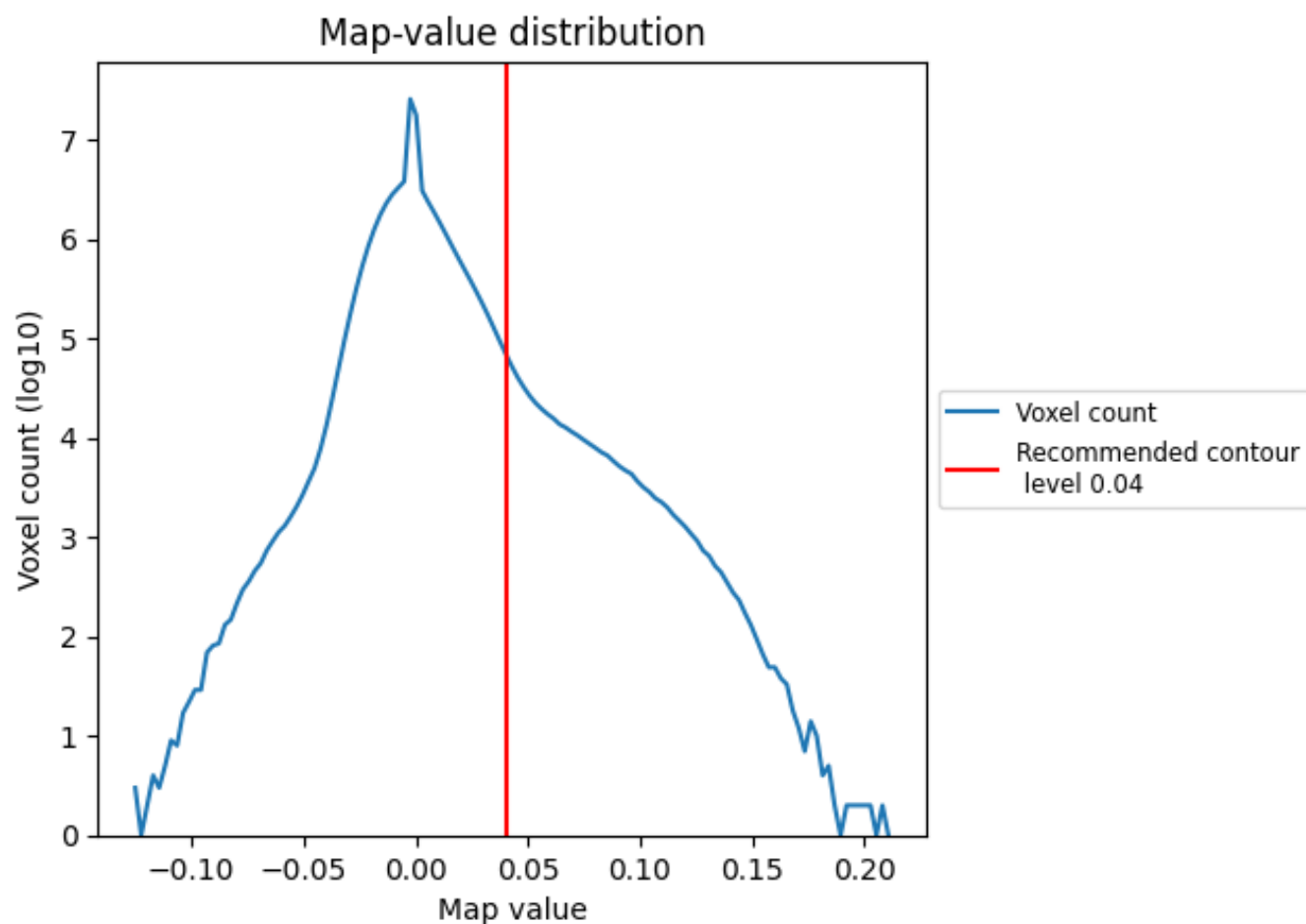


Z

7 Map analysis [i](#)

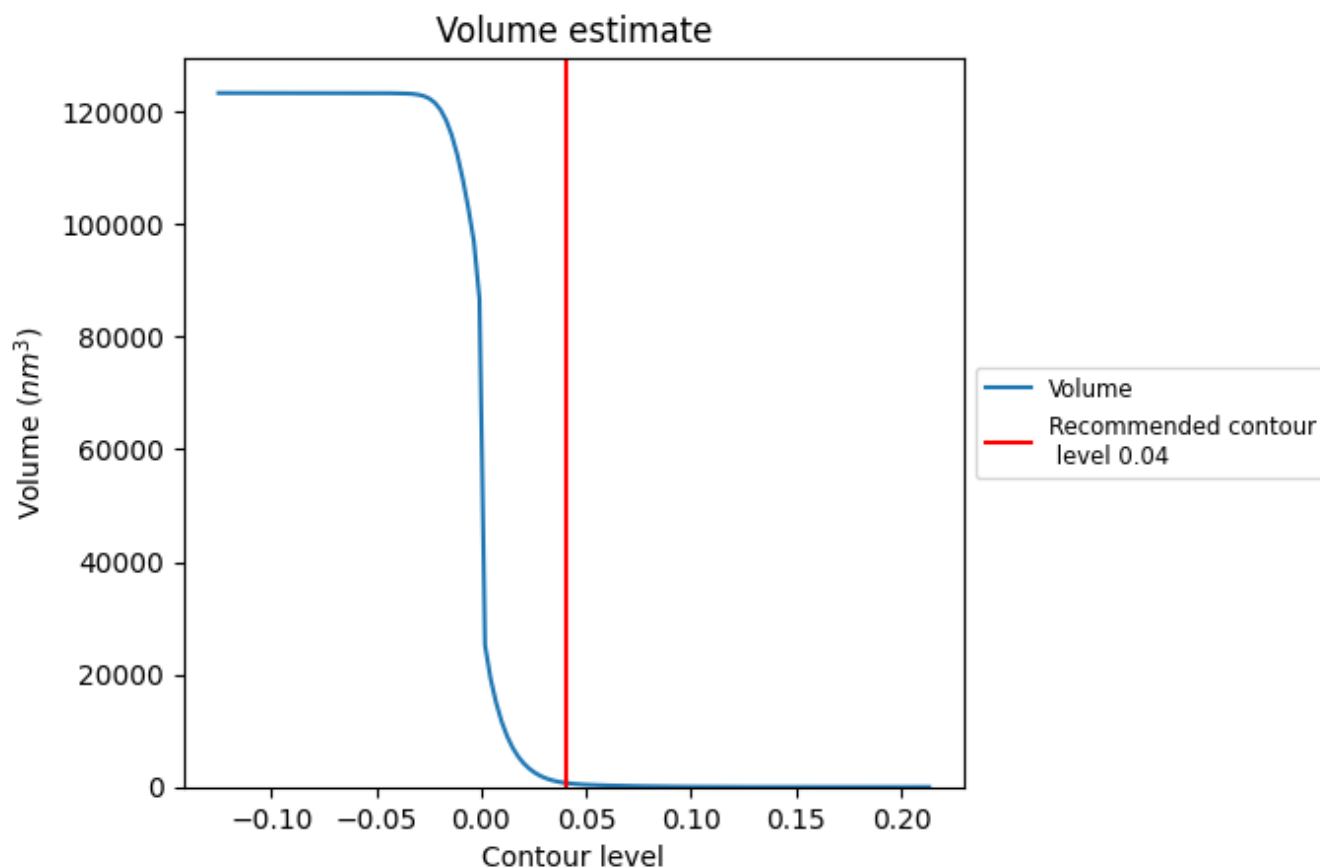
This section contains the results of statistical analysis of the map.

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.

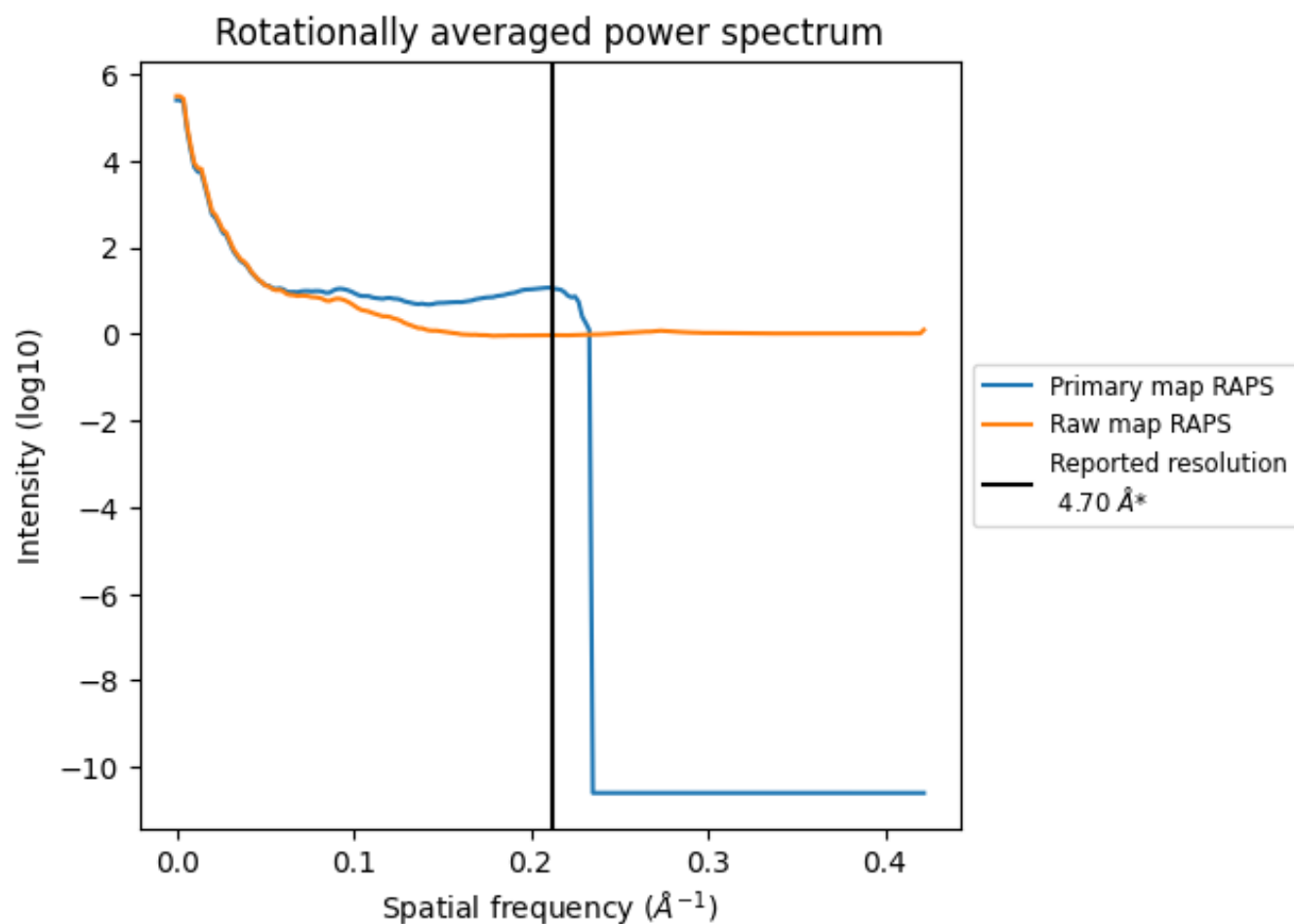
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 727 nm³; this corresponds to an approximate mass of 656 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 ⓘ

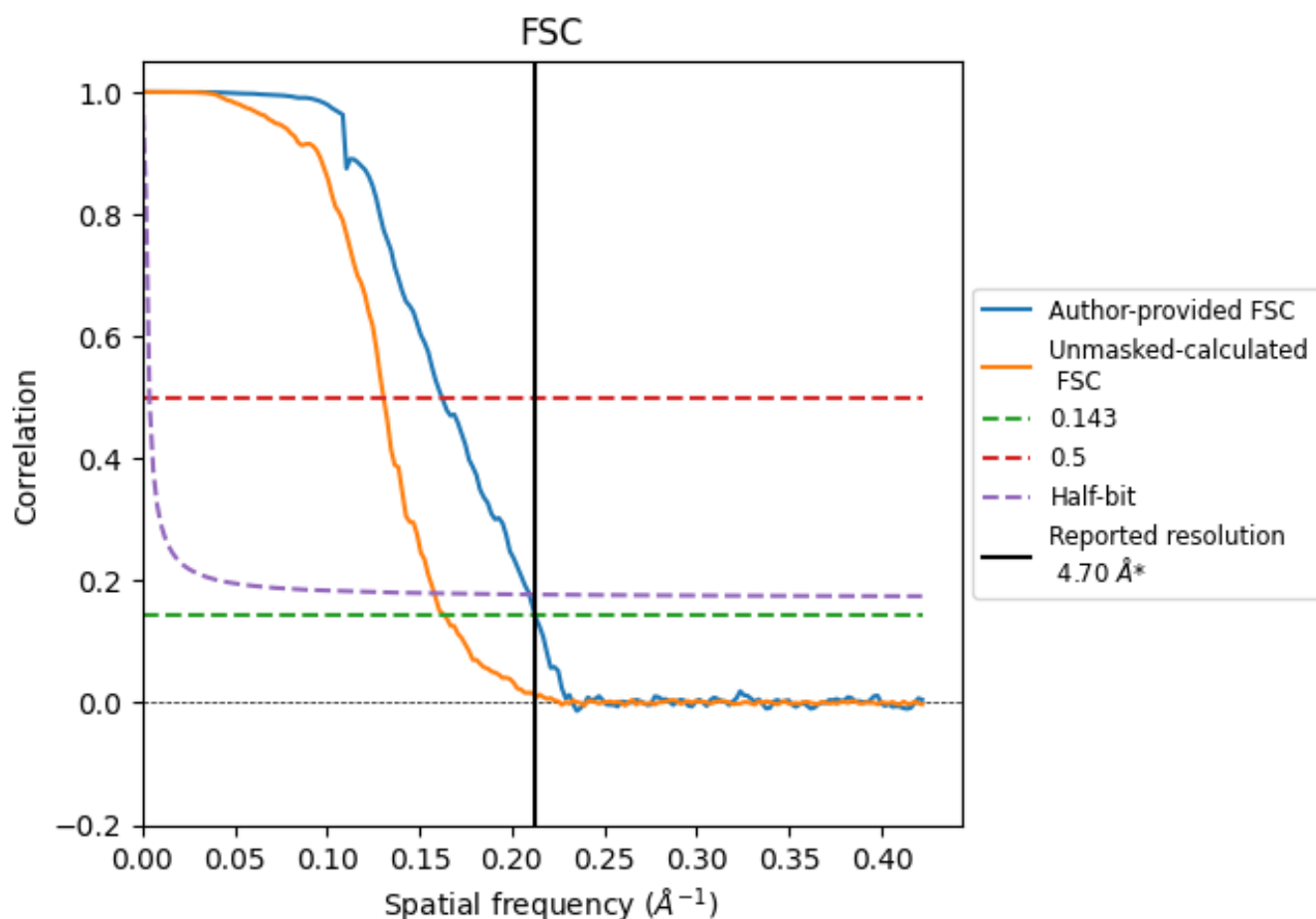


*Reported resolution corresponds to spatial frequency of 0.213 Å⁻¹

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 0.213 Å⁻¹

8.2 Resolution estimates [i](#)

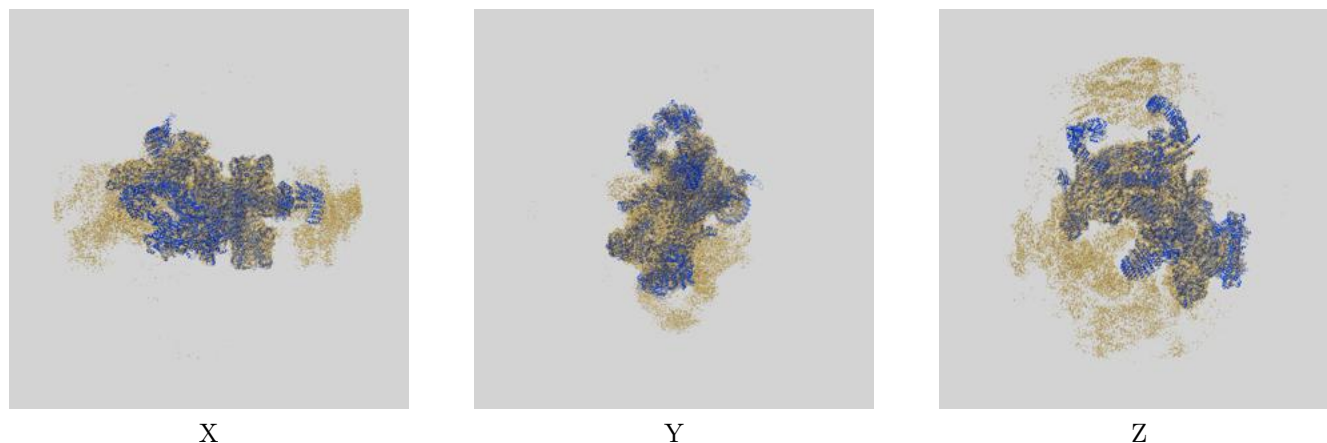
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.70	-	-
Author-provided FSC curve	4.71	6.17	4.78
Unmasked-calculated*	6.12	7.66	6.33

*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 6.12 differs from the reported value 4.7 by more than 10 %

9 Map-model fit [i](#)

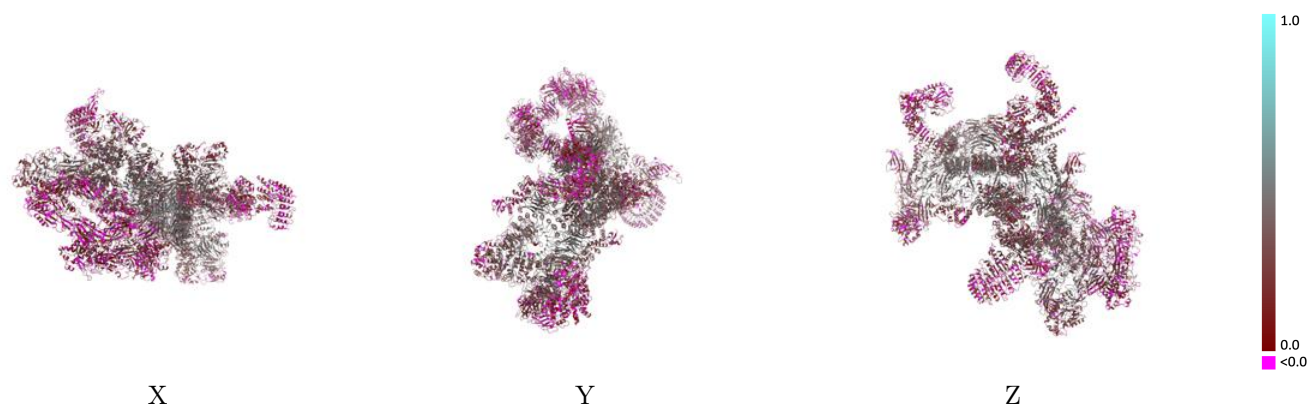
This section contains information regarding the fit between EMDB map EMD-55603 and PDB model 9T63. Per-residue inclusion information can be found in section [3](#) on page [7](#).

9.1 Map-model overlay [i](#)



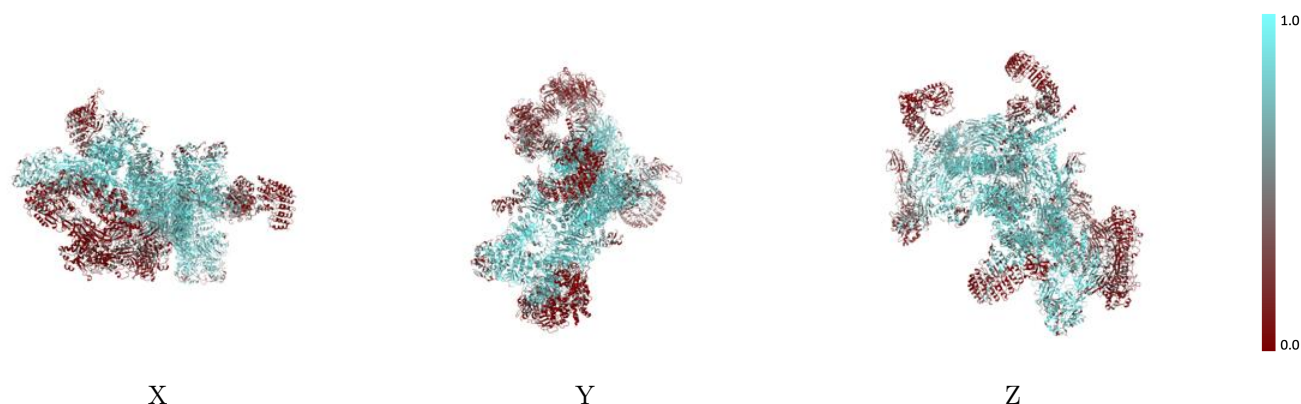
The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



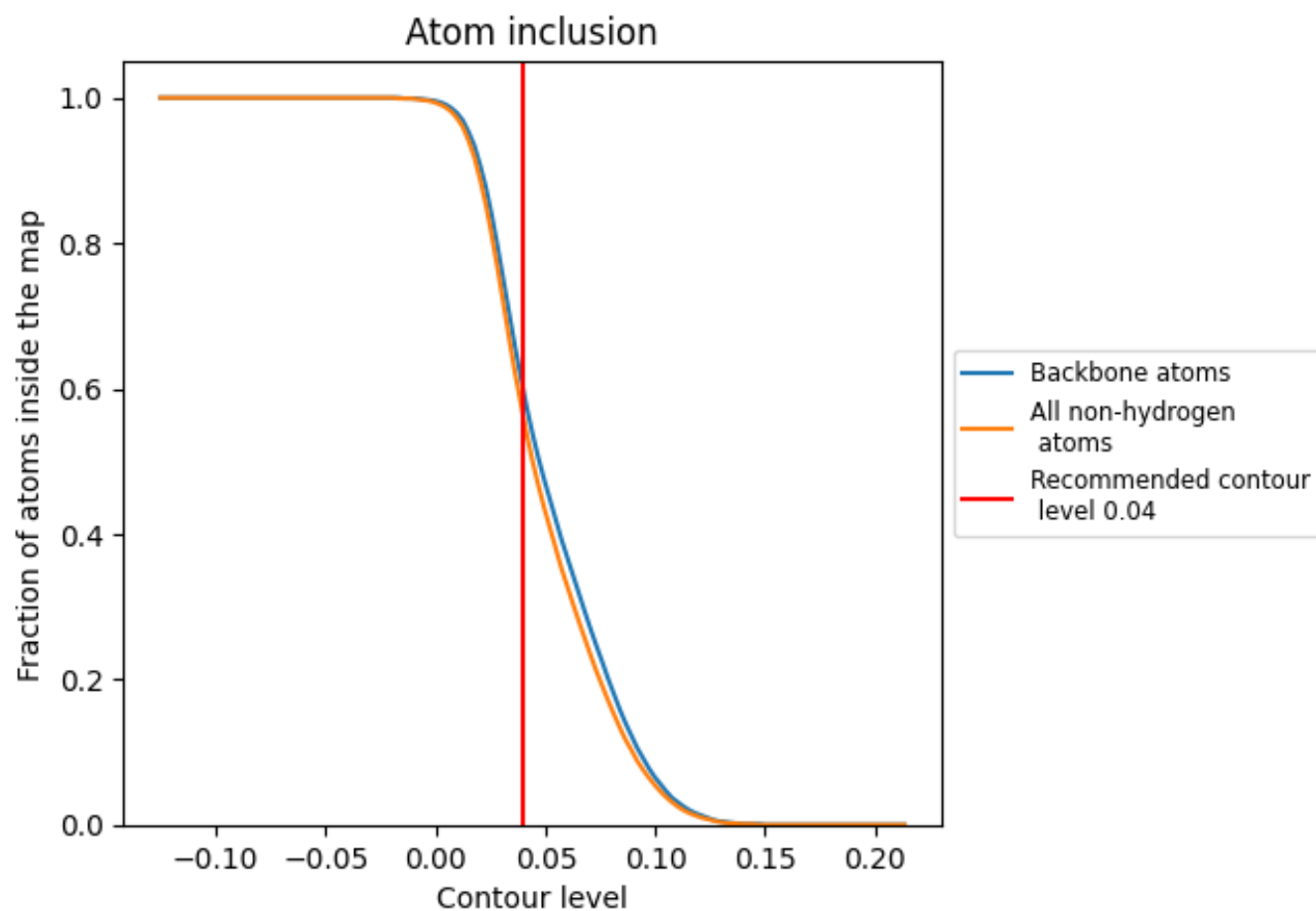
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)



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 (0.04).

9.4 Atom inclusion [i](#)



At the recommended contour level, 60% of all backbone atoms, 56% 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 (0.04) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5600	 0.2680
A	 0.8400	 0.3840
B	 0.8130	 0.3780
C	 0.1920	 0.1560
D	 0.2080	 0.1700
E	 0.1570	 0.1220
F	 0.1130	 0.1190
G	 0.8010	 0.3570
H	 0.7370	 0.3130
I	 0.1950	 0.1700
J	 0.7040	 0.3030
M	 0.7810	 0.3320
N	 0.8250	 0.3770
O	 0.8430	 0.3280
P	 0.7780	 0.3260
Q	 0.8100	 0.3660
R	 0.8510	 0.3660
S	 0.7400	 0.3070
T	 0.8100	 0.3290
X	 0.2700	 0.1650
Y	 0.2760	 0.1730
Z	 0.5160	 0.2210
a	 0.5330	 0.2580
b	 0.9110	 0.3810
c	 0.8150	 0.3490
d	 0.8300	 0.3480
e	 0.6930	 0.3460
f	 0.2000	 0.1310
g	 0.9050	 0.4090
h	 0.5140	 0.2200

