Full wwPDB EM Validation Report ⓘ

Jul 8, 2024 – 10:17 AM EDT

PDB ID	:	8GHL
EMDB ID	:	EMD-40006
Title	:	the Hir complex core
Authors	:	Kim, H.J.; Murakami, K.
Deposited on	:	2023-03-10
Resolution	:	2.96 Å(reported)
Based on initial model	:	.

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:

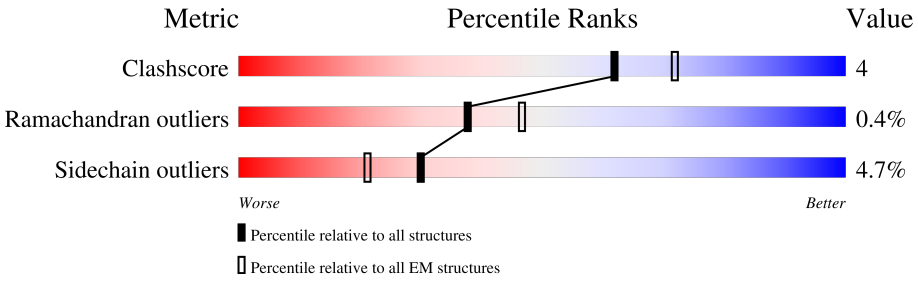
EMDB validation analysis	:	0.0.1.dev92
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.96 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	840	27% 6% 67%
1	G	840	27% 6% 67%
2	D	1648	41% 8% 50%
2	J	1648	5% 42% 7% 50%
3	B	875	40% 7% 52%
3	C	875	35% 7% 57%
3	H	875	41% 7% 52%
3	I	875	36% 5% 57%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 30648 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 Protein HIR1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	276	Total	C	N	O	S	0	0
			2169	1390	365	403	11		
1	G	276	Total	C	N	O	S	0	0
			2169	1390	365	403	11		

- Molecule 2 is a protein called Histone transcription regulator 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	J	818	Total	C	N	O	S	0	0
			6781	4349	1127	1284	21		
2	D	818	Total	C	N	O	S	0	0
			6781	4349	1127	1284	21		

- Molecule 3 is a protein called Protein HIR2.

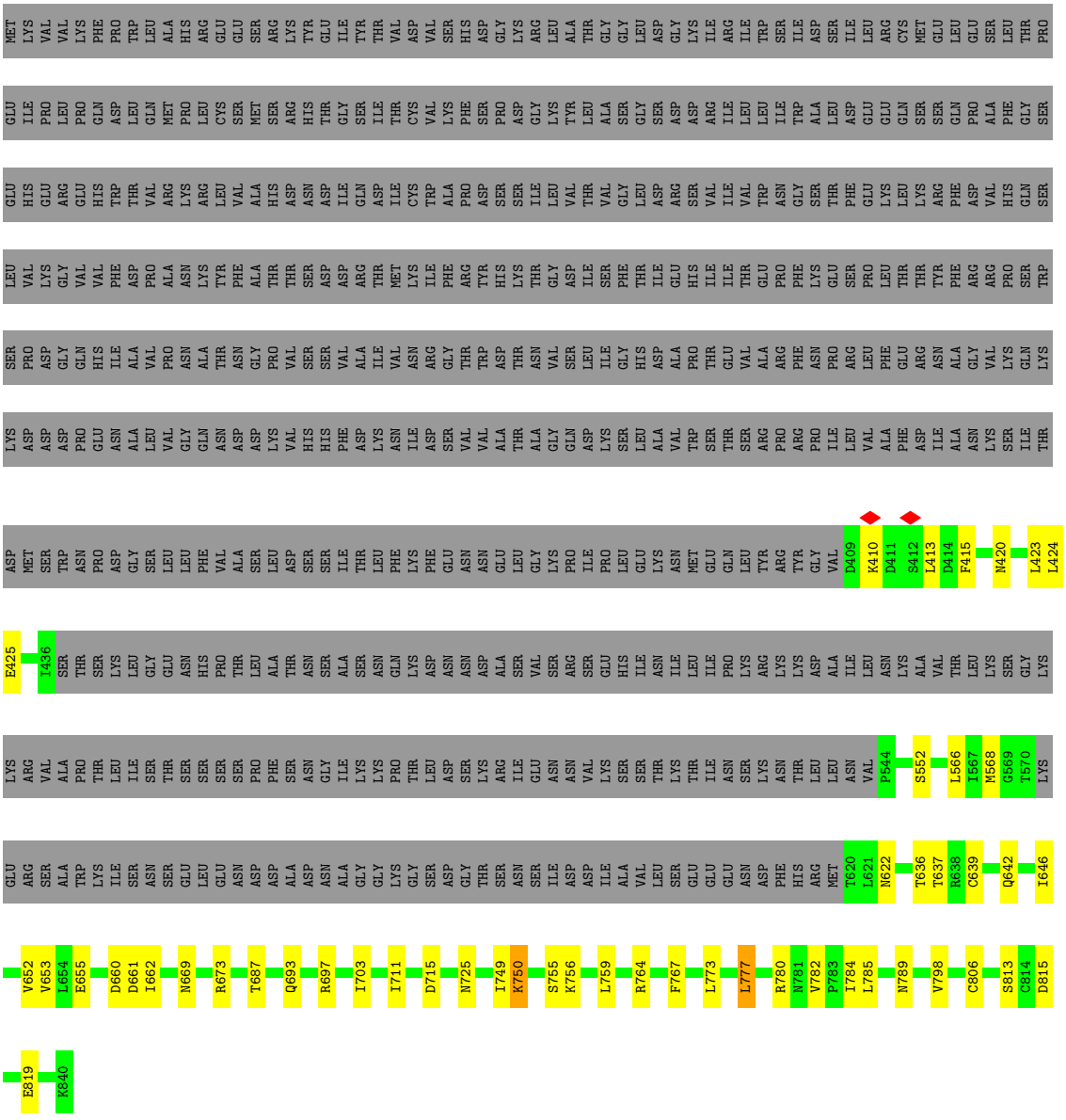
Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	419	Total	C	N	O	S	0	0
			3351	2132	556	645	18		
3	C	377	Total	C	N	O	S	0	0
			3023	1936	498	572	17		
3	H	419	Total	C	N	O	S	0	0
			3351	2132	556	645	18		
3	I	377	Total	C	N	O	S	0	0
			3023	1936	498	572	17		

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.

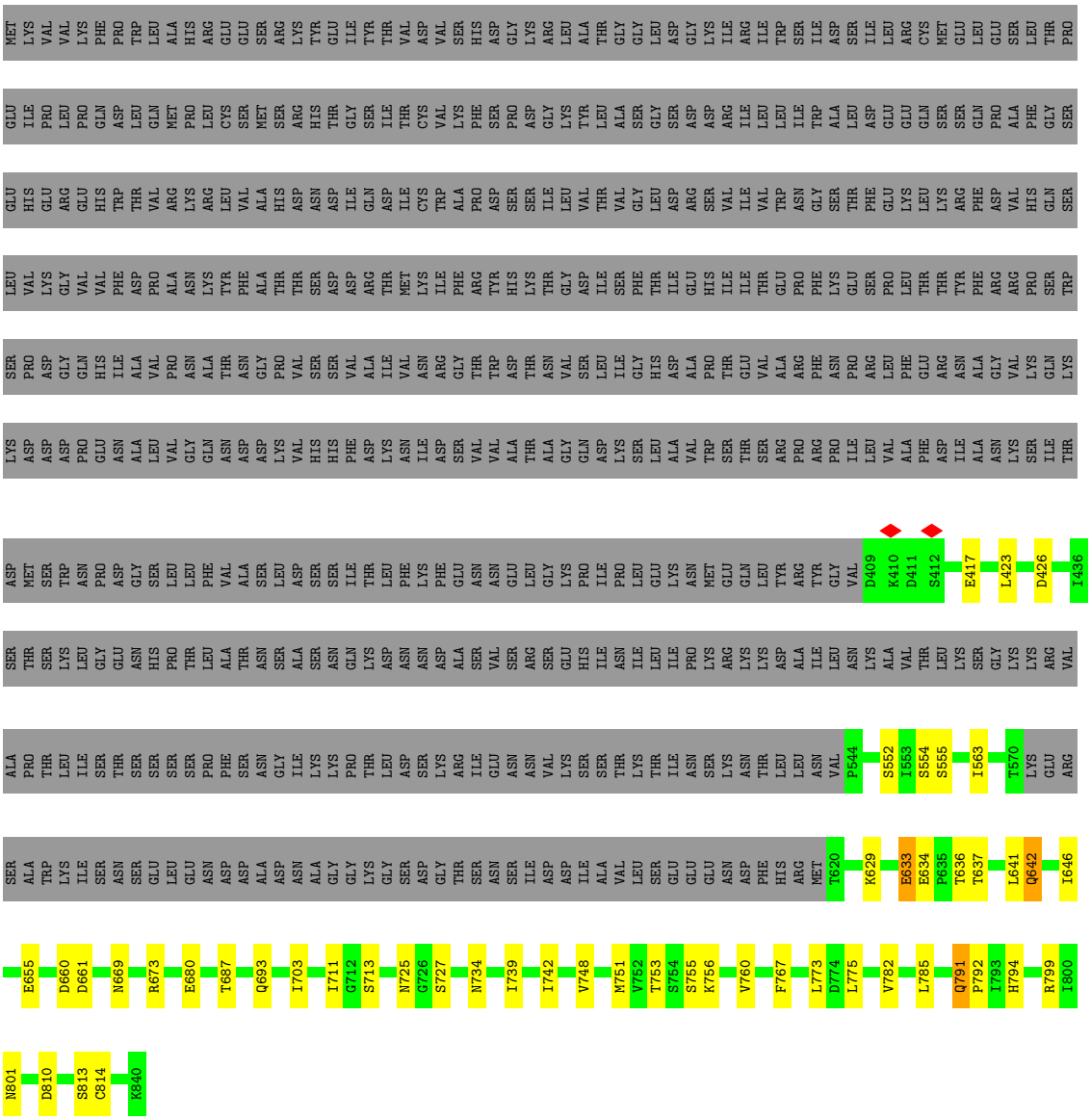
- Molecule 1: Protein HIR1

Chain A: 27% 6% 67%



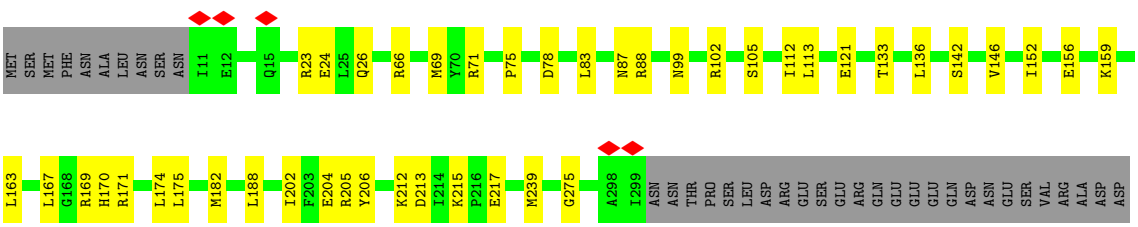
• Molecule 1: Protein HIR1

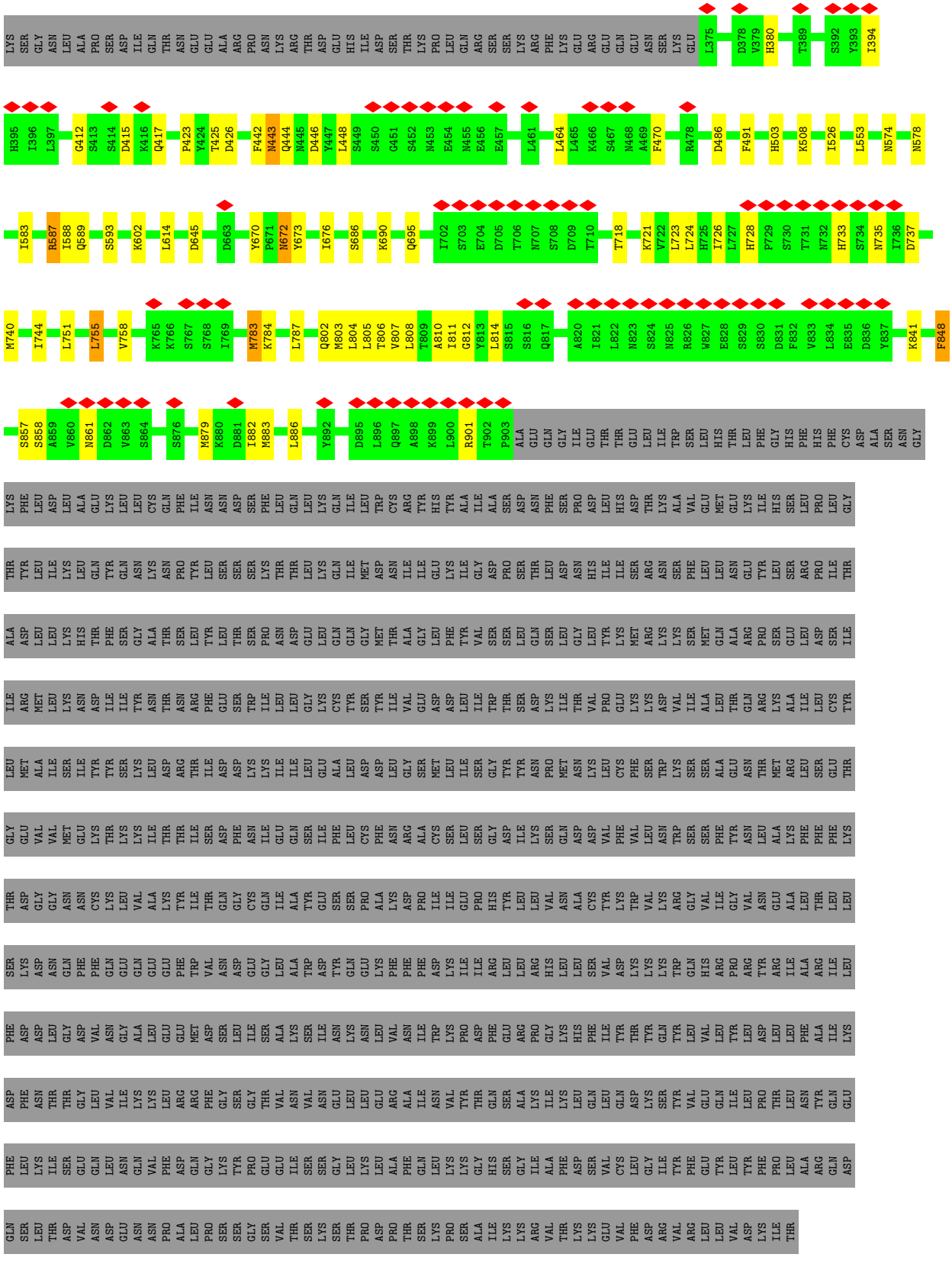
Chain G:



• Molecule 2: Histone transcription regulator 3

Chain J:

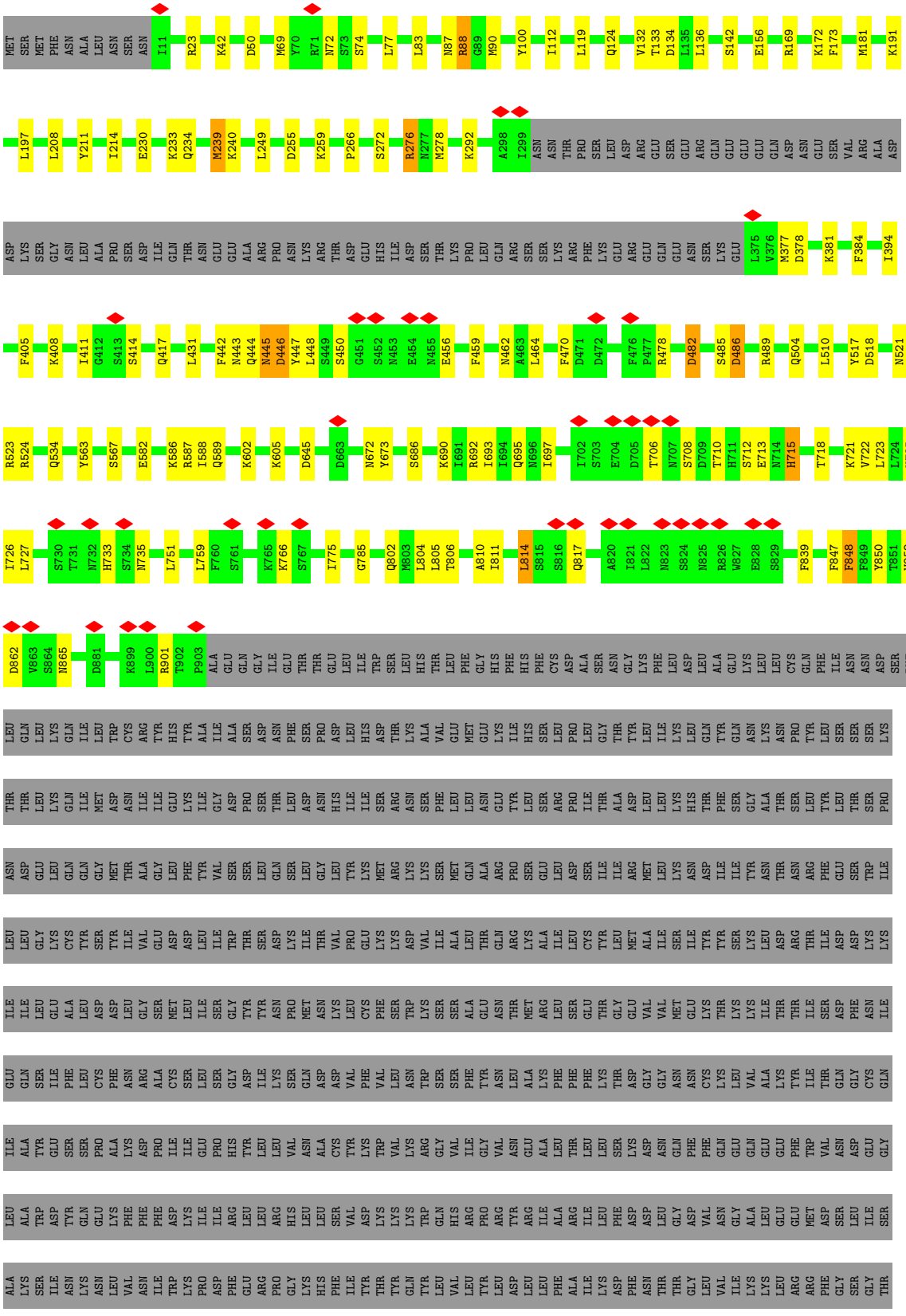




• Molecule 2: Histone transcription regulator 3

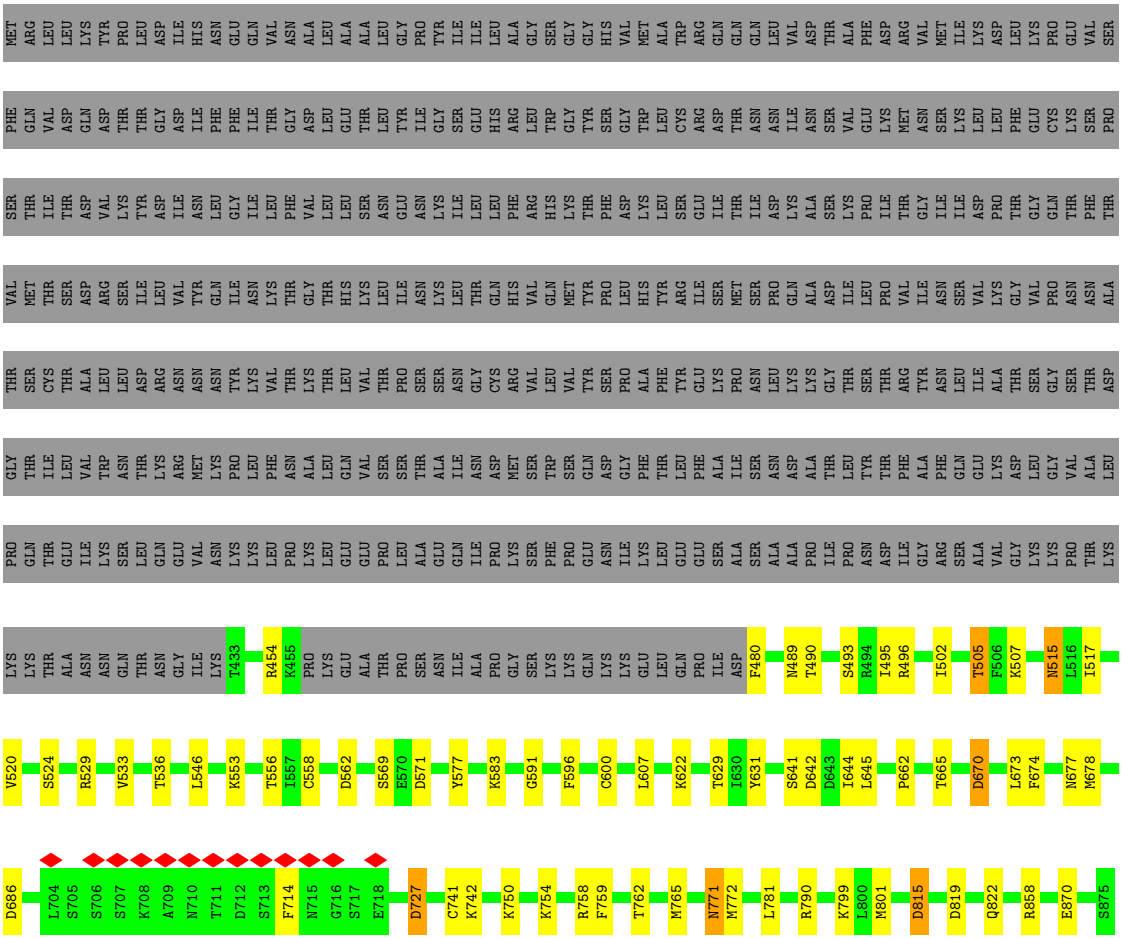
Chain D:


41%
8%
50%


MET SER MET PHE ASN ALA LEU ASN SER ASN I11 R23 K42 D50 M69 Y70 R71 N72 S73 S74 L77 L83 N87 R88 G89 M90 Y100 I112 L119 Q124 V132 T133 D134 L135 L136 S142 E156 R169 K172 F173 M181 K191
L197 L208 Y211 I214 E230 K233 Q234 M239 K240 L249 D255 K259 P266 S272 R276 N277 M278 K292 A298 I299 ASN ASN THR PRO SER LEU ASP ARG GLU SER GLU ARG GLN GLU GLU GLU GLN ASP ASN GLU SER VAL ARG ALA ASP
ASP LYS SER GLY ASN LEU ALA PRO SER ASP ILE GLN THR ASN GLU GLU ALA ARG PRO ASN LYS ARG THR ASP GLU HIS ILE ASP SER THR LYS PRO LEU GLN ARG SER SER LYS ARG PHE LYS GLU ARG GLU GLN GLU ASN SER LYS GLU L375 V376 M377 D378 K381 F384 I394
F405 K408 I411 G412 S413 S414 Q417 L431 F442 N443 Q444 N445 D446 Y447 L448 S449 S450 G451 S452 N453 E454 N455 E456 F459 N462 A463 L464 F470 D471 D472 F476 P477 R478 D482 S485 D486 R489 Q504 L510 Y517 D518 N521 G522
R523 R524 Q534 Y563 S567 E582 K586 R587 I588 Q589 K602 K605 D645 D663 N672 Y673 S686 K690 I691 R692 I693 I694 Q695 N696 I697 I702 S703 E704 D705 T706 N707 S708 D709 T710 H711 S712 E713 N714 H715 T718 K721 V722 L723 L724 H725
I726 L727 S730 T731 N732 H733 S734 N735 L751 L759 F760 S761 K765 K766 S767 I775 G785 Q802 M803 L804 L805 T806 A810 I811 L814 S815 S816 Q817 A820 I821 L822 N823 S824 N825 R826 W827 E828 S829 F839 F847 F848 F849 Y850 T851 V852 S858
D862 V863 S864 N865 D881 K899 L900 R901 T902 P903 ALA GLU GLN GLY ILE GLU THR THR GLU LEU ILE TRP SER LEU HIS THR LEU PHE GLY HIS PHE HIS PHE CYS ASP ALA SER ASN GLY LYS PHE LEU ASP LEU ALA GLU LYS LEU LEU CYS GLN PHE ILE ASN ASN ASP SER PHE
LEU GLN LEU LYS GLN ILE LEU TRP CYS ARG TYR HIS TYR ALA ILE ALA SER ASP ASN PHE SER PRO ASP LEU HIS ASP THR LYS ALA VAL GLU MET GLU LYS ILE HIS SER LEU PRO LEU GLY THR TYR LEU ILE LYS LEU GLN TYR GLN ASN LYS ASN PRO TYR LEU SER SER SER LYS
THR THR LEU LYS GLN ILE MET ASP ASN ILE ILE GLU LYS ILE GLY ASP PRO SER THR LEU ASP ASN HIS ILE ILE SER ARG ASN SER PHE LEU LEU ASN GLU TYR LEU SER ARG PRO ILE THR ALA ASP LEU LEU LYS HIS THR PHE SER GLY ALA THR SER LEU TYR LEU THR SER PRO
ASN ASP GLU LEU GLN GLN GLY MET THR ALA GLY LEU PHE TYR VAL SER SER LEU GLN SER LEU GLY LEU TYR LYS MET ARG LYS SER MET GLN ALA ARG PRO SER GLU LEU ASP SER ILE ILE ARG MET LEU LYS ASP ILE ILE TYR ASN THR ASN ARG PHE GLU SER TRP ILE
LEU LEU GLY LYS CYS TYR SER TYR ILE VAL GLU ASP ASP LEU ILE TRP THR SER ASP LYS ILE THR VAL PRO GLU LYS LYS ASP VAL ILE ALA LEU THR GLN ARG LYS ALA ILE LEU CYS TYR LEU MET ALA ILE SER ILE TYR TYR SER LYS LEU ASP ARG THR ILE ASP ASN LYS
ILE ILE LEU GLU ALA LEU GLY SER MET LEU ILE SER GLY TYR TYR ASN PRO MET ASN LYS LEU CYS PHE SER TRP LYS SER SER ALA GLU ASN THR MET ARG LEU SER GLU THR GLY GLU VAL VAL MET GLU LYS LYS ILE THR THR ASP PHE ASN ILE
GLU GLN SER ILE PHE LEU CYS PHE ASN ARG ALA CYS SER LEU SER GLY ASP ILE LYS SER GLN ASP ASP VAL PHE VAL LEU ASN TRP SER SER PHE TYR ASN LEU ASN ASP PHE PHE PHE LYS THR ASP GLY GLY ASN ASN CYS LYS LEU VAL ALA LYS PHE PHE ASP ASN GLN
ILE ALA TYR GLU SER SER PRO ALA LYS ASP PRO ILE ILE GLU PRO HIS TYR LEU LEU VAL ASN ALA CYS TYR LYS TRP VAL LYS ARG GLY VAL ILE GLY VAL ASN GLU ALA LEU THR LEU LEU SER LYS ASP ASN GLN PHE PHE GLN GLU GLN GLU GLU PHE TRP VAL ASN ASP GLU
LEU ALA TRP ASP TYR GLN GLU LYS PHE PHE ASP LYS ILE ILE ARG LEU LEU ARG HIS LEU LEU SER VAL ASP LYS LYS LYS TRP GLN HIS ARG PRO ARG TYR ARG ILE ALA ARG ILE LEU LEU PHE ASP ASP LEU GLY ASP VAL ASN GLY ALA LEU GLU GLU MET ASP SER LEU ILE SER
ALA LYS SER ASN LEU VAL ASN ILE TRP LYS PRO ASP PHE GLU ARG PRO GLY LYS HIS PHE ILE TYR THR TYR GLN TYR LEU VAL LEU TYR ASP LEU LEU PHE ALA ILE LYS ASP PHE ASN THR THR GLY LEU VAL ILE LYS LYS LEU GLU ARG ARG PHE GLY SER GLY THR

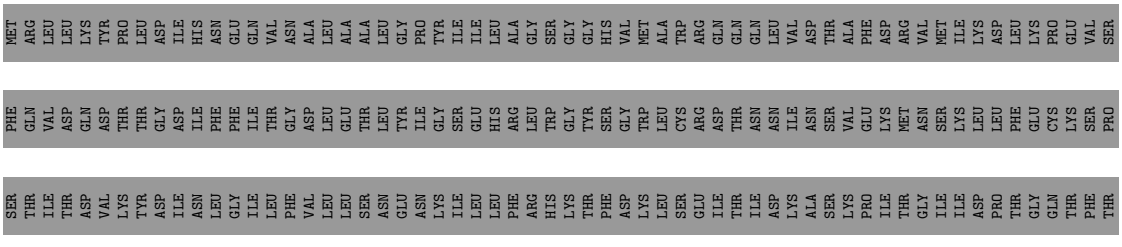
• Molecule 3: Protein HIR2

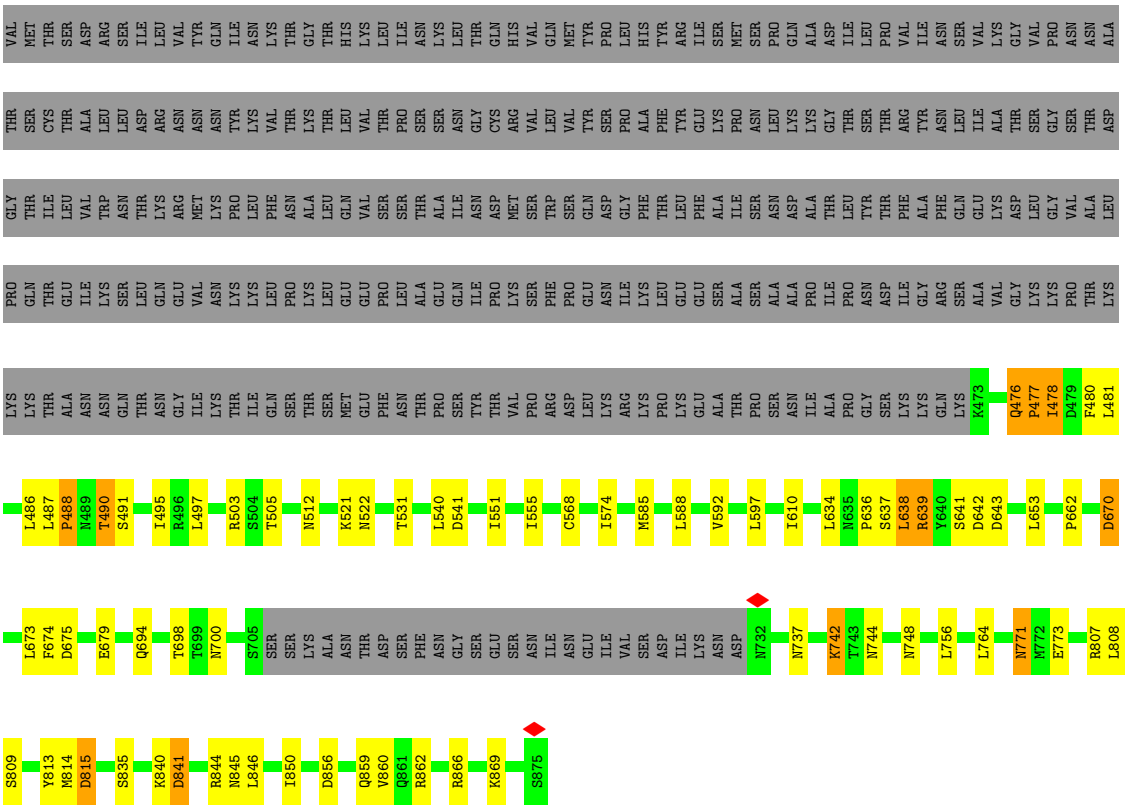
Chain B:



• Molecule 3: Protein HIR2

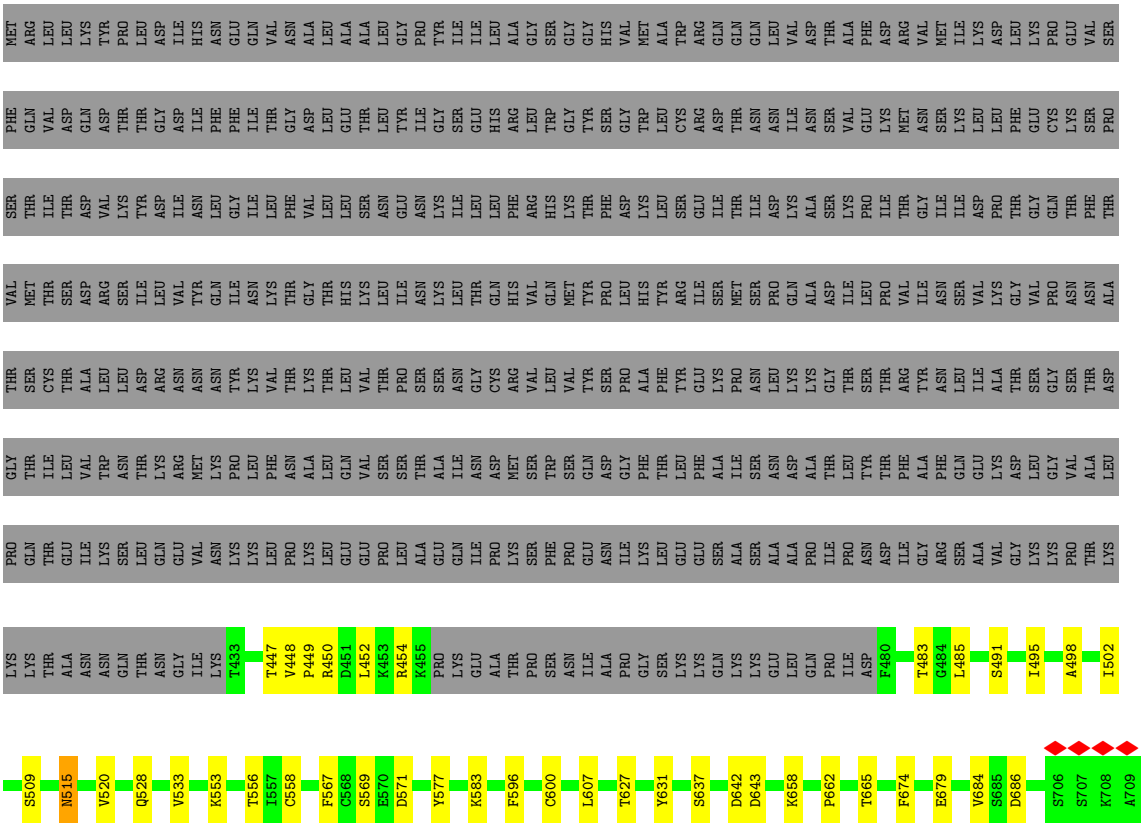
Chain C:

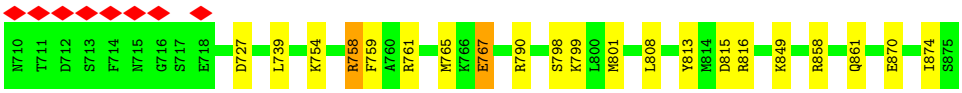




• Molecule 3: Protein HIR2

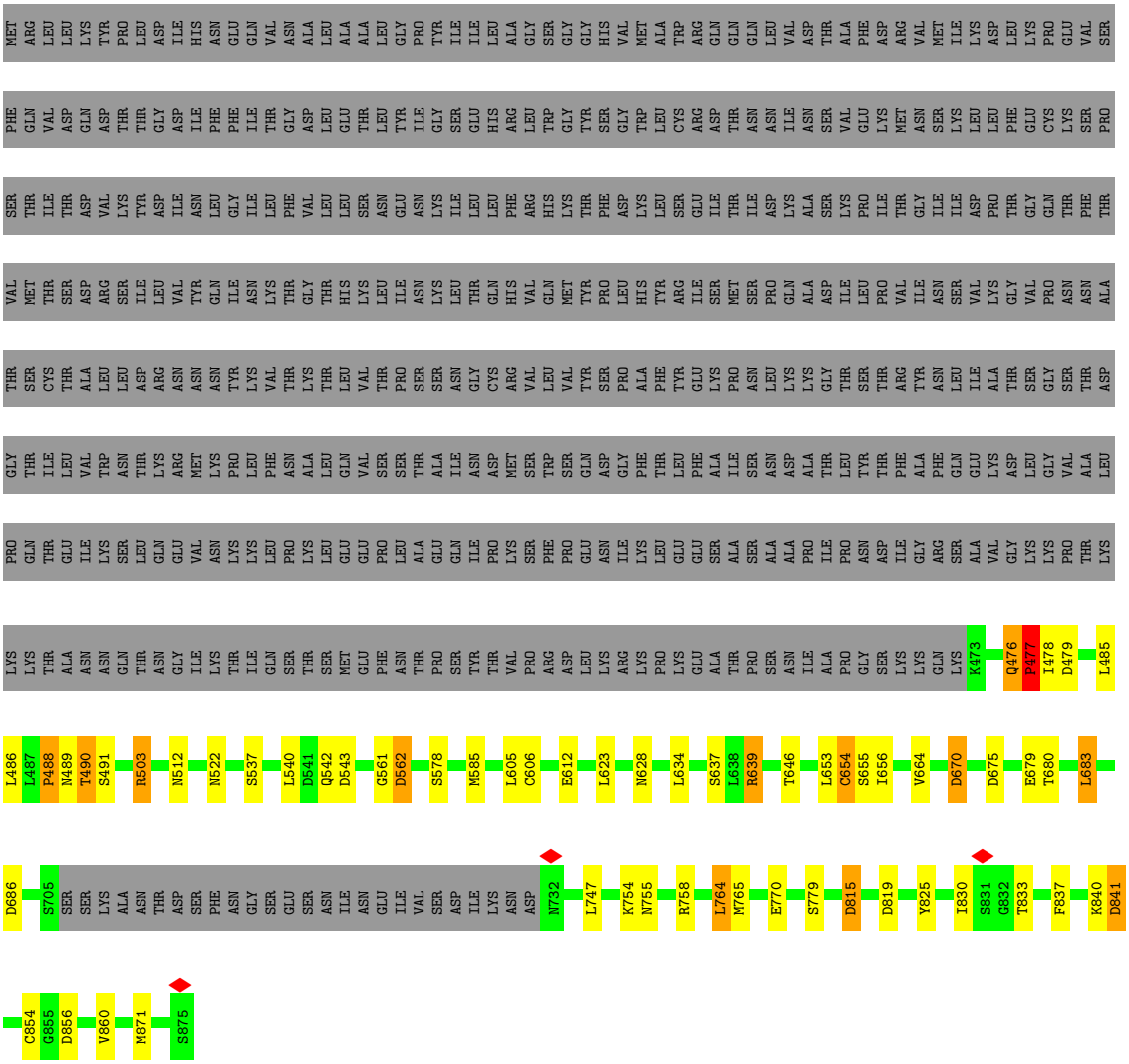
Chain H:





• Molecule 3: Protein HIR2

Chain I:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	495250	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	42	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.172	Depositor
Minimum map value	-0.643	Depositor
Average map value	0.010	Depositor
Map value standard deviation	0.069	Depositor
Recommended contour level	0.315	Depositor
Map size (Å)	408.0, 408.0, 408.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.36, 1.36, 1.36	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	0.32	0/2207	0.63	1/2982 (0.0%)
1	G	0.32	0/2207	0.65	2/2982 (0.1%)
2	D	0.30	0/6927	0.61	8/9358 (0.1%)
2	J	0.28	0/6927	0.58	7/9358 (0.1%)
3	B	0.30	0/3413	0.59	1/4618 (0.0%)
3	C	0.32	0/3081	0.67	7/4171 (0.2%)
3	H	0.31	0/3413	0.59	1/4618 (0.0%)
3	I	0.35	0/3081	0.72	9/4171 (0.2%)
All	All	0.31	0/31256	0.62	36/42258 (0.1%)

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
2	D	0	2
2	J	0	2
3	C	0	2
3	I	0	1
All	All	0	7

There are no bond length outliers.

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	814	LEU	CA-CB-CG	9.55	137.27	115.30
3	I	562	ASP	CB-CG-OD1	9.43	126.79	118.30
3	C	481	LEU	CA-CB-CG	9.20	136.47	115.30
1	G	642	GLN	CA-CB-CG	8.50	132.09	113.40
2	D	197	LEU	CA-CB-CG	8.29	134.37	115.30
2	D	255	ASP	CB-CG-OD1	8.18	125.66	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	540	LEU	CA-CB-CG	8.13	134.01	115.30
3	I	764	LEU	CA-CB-CG	8.06	133.84	115.30
3	C	541	ASP	CB-CG-OD1	7.68	125.21	118.30
1	A	413	LEU	CA-CB-CG	7.65	132.89	115.30
1	G	791	GLN	CA-CB-CG	7.53	129.97	113.40
2	J	755	LEU	CA-CB-CG	7.45	132.44	115.30
3	I	871	MET	CG-SD-CE	7.42	112.06	100.20
3	I	871	MET	CA-CB-CG	7.32	125.75	113.30
3	I	485	LEU	CA-CB-CG	6.85	131.05	115.30
2	J	755	LEU	CB-CG-CD1	-6.76	99.50	111.00
3	I	860	VAL	CG1-CB-CG2	-6.76	100.09	110.90
3	I	540	LEU	CA-CB-CG	6.66	130.61	115.30
2	J	814	LEU	CA-CB-CG	6.50	130.26	115.30
2	D	814	LEU	CB-CG-CD2	6.32	121.75	111.00
2	J	783	MET	CA-CB-CG	6.14	123.74	113.30
3	I	653	LEU	CA-CB-CG	6.11	129.34	115.30
2	D	775	ILE	CG1-CB-CG2	-5.69	98.88	111.40
3	B	772	MET	CA-CB-CG	5.67	122.94	113.30
3	C	814	MET	CB-CG-SD	5.67	129.40	112.40
2	J	803	MET	CA-CB-CG	5.66	122.92	113.30
3	H	767	GLU	CA-CB-CG	5.58	125.69	113.40
2	J	446	ASP	C-N-CA	5.56	135.59	121.70
3	I	476	GLN	CA-CB-CG	5.54	125.59	113.40
3	C	764	LEU	CA-CB-CG	5.54	128.04	115.30
3	C	756	LEU	CA-CB-CG	5.47	127.89	115.30
3	C	487	LEU	CA-CB-CG	5.41	127.73	115.30
2	D	239	MET	CB-CG-SD	5.34	128.43	112.40
2	D	759	LEU	CA-CB-CG	5.25	127.37	115.30
2	D	446	ASP	C-N-CA	5.20	134.70	121.70
2	J	69	MET	CA-CB-CG	5.15	122.06	113.30

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	476	GLN	Peptide
3	C	636	PRO	Peptide
2	D	444	GLN	Peptide
2	D	445	ASN	Peptide
3	I	477	PRO	Peptide
2	J	444	GLN	Peptide
2	J	587	ARG	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	2169	0	2236	26	0
1	G	2169	0	2236	24	0
2	D	6781	0	6706	61	0
2	J	6781	0	6706	60	0
3	B	3351	0	3366	32	0
3	C	3023	0	3048	42	0
3	H	3351	0	3366	30	0
3	I	3023	0	3048	29	0
All	All	30648	0	30712	274	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 4.

All (274) 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)
2:D:23:ARG:HH22	2:D:72:ASN:HD21	1.41	0.69
2:J:744:ILE:HG12	2:J:755:LEU:HD11	1.76	0.67
2:D:697:ILE:HG13	2:D:715:HIS:HE1	1.60	0.67
1:A:669:ASN:HA	1:A:687:THR:HG22	1.79	0.63
3:C:866:ARG:HA	3:C:869:LYS:HE2	1.80	0.63
1:G:552:SER:HB3	3:H:600:CYS:HB2	1.81	0.63
2:J:202:ILE:HA	2:J:205:ARG:HB3	1.82	0.61
3:I:477:PRO:HD2	3:I:478:ILE:HD12	1.82	0.61
2:J:670:TYR:HB3	2:J:673:TYR:HB2	1.84	0.60
2:D:708:SER:HB2	2:D:712:SER:HB3	1.83	0.60
2:D:69:MET:SD	2:D:69:MET:N	2.75	0.60
3:H:520:VAL:HG22	3:H:533:VAL:HG22	1.83	0.59
2:J:133:THR:HG21	2:J:156:GLU:HB2	1.84	0.59
2:D:133:THR:HG21	2:D:156:GLU:HB2	1.85	0.59
3:C:840:LYS:HE3	3:C:844:ARG:HD3	1.85	0.59
2:J:526:ILE:O	2:J:672:ASN:ND2	2.36	0.59
1:G:629:LYS:O	1:G:633:GLU:HB3	2.00	0.59
3:B:815:ASP:OD1	3:B:815:ASP:N	2.36	0.59
3:B:490:THR:O	3:B:496:ARG:NH1	2.35	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:669:ASN:HA	1:G:687:THR:HG22	1.84	0.58
2:D:811:ILE:HA	2:D:814:LEU:HD23	1.85	0.58
3:B:480:PHE:N	3:B:502:ILE:O	2.36	0.58
1:G:792:PRO:HB2	3:H:485:LEU:HD23	1.86	0.58
3:C:637:SER:OG	3:C:638:LEU:N	2.36	0.57
2:D:445:ASN:H	2:D:588:ILE:HG22	1.70	0.57
2:D:456:GLU:HG2	2:D:588:ILE:HD13	1.85	0.57
3:C:859:GLN:O	3:C:862:ARG:NH2	2.38	0.57
2:D:156:GLU:HG2	2:D:181:MET:HE1	1.87	0.57
2:D:230:GLU:OE1	2:D:234:GLN:NE2	2.38	0.57
1:G:725:ASN:O	3:I:639:ARG:NH2	2.38	0.56
1:A:646:ILE:O	1:A:673:ARG:NH2	2.38	0.56
3:B:520:VAL:HG22	3:B:533:VAL:HG22	1.86	0.56
3:I:764:LEU:HD12	3:I:765:MET:HB3	1.87	0.56
2:D:74:SER:HB3	2:D:77:LEU:HG	1.87	0.56
3:C:698:THR:HA	3:C:744:ASN:HD21	1.69	0.56
1:G:767:PHE:HB2	1:G:782:VAL:HB	1.87	0.56
3:I:488:PRO:HD2	3:I:491:SER:HB3	1.87	0.56
3:I:755:ASN:OD1	3:I:758:ARG:NH1	2.38	0.56
2:J:442:PHE:HA	2:J:805:LEU:HD13	1.86	0.56
1:A:725:ASN:O	3:C:639:ARG:NH2	2.39	0.56
1:G:755:SER:OG	1:G:756:LYS:N	2.37	0.55
2:D:645:ASP:O	2:D:695:GLN:NE2	2.38	0.55
2:J:175:LEU:HD11	3:B:870:GLU:HG3	1.87	0.55
3:I:654:CYS:HB2	3:I:664:VAL:HG22	1.89	0.55
2:D:272:SER:HB3	2:D:276:ARG:HH21	1.72	0.55
3:B:515:ASN:OD1	3:B:515:ASN:N	2.40	0.54
3:H:515:ASN:OD1	3:H:515:ASN:N	2.39	0.54
2:D:524:ARG:HD3	2:D:563:TYR:HB3	1.88	0.54
1:A:655:GLU:HB2	1:A:662:ILE:HD11	1.90	0.54
1:A:755:SER:OG	1:A:756:LYS:N	2.38	0.54
3:H:815:ASP:OD1	3:H:815:ASP:N	2.39	0.54
3:C:694:GLN:NE2	3:C:773:GLU:OE1	2.41	0.54
2:J:673:TYR:HB3	2:J:676:ILE:HD12	1.90	0.53
3:H:758:ARG:HA	3:H:761:ARG:HD2	1.90	0.53
3:H:642:ASP:OD1	3:H:642:ASP:N	2.40	0.53
2:D:83:LEU:O	2:D:87:ASN:ND2	2.42	0.53
3:B:642:ASP:OD1	3:B:642:ASP:N	2.41	0.53
2:D:443:ASN:HB3	2:D:589:GLN:HA	1.91	0.53
3:I:561:GLY:O	2:D:169:ARG:NH2	2.42	0.53
2:D:478:ARG:NH1	2:D:482:ASP:OD1	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:566:LEU:HG	3:B:645:LEU:HD12	1.91	0.52
3:C:856:ASP:OD1	3:C:856:ASP:N	2.41	0.52
2:J:879:MET:HA	2:J:882:ILE:HG22	1.91	0.52
2:J:737:ASP:HB3	2:J:740:MET:HG3	1.91	0.52
3:C:634:LEU:O	3:C:639:ARG:NH1	2.42	0.52
2:D:394:ILE:O	2:D:901:ARG:NH1	2.39	0.52
2:D:431:LEU:HD11	2:D:852:VAL:HG22	1.92	0.52
1:A:552:SER:HB3	3:B:600:CYS:HB2	1.92	0.52
3:I:634:LEU:O	3:I:639:ARG:NH1	2.43	0.52
2:D:208:LEU:HD11	2:D:214:ILE:HG21	1.91	0.52
3:B:677:ASN:HD22	3:B:790:ARG:HH22	1.58	0.51
3:C:841:ASP:OD1	3:C:841:ASP:N	2.42	0.51
3:H:569:SER:OG	3:H:571:ASP:OD1	2.28	0.51
2:J:75:PRO:HA	2:J:78:ASP:HB2	1.93	0.51
2:D:710:THR:HA	2:D:713:GLU:HB2	1.91	0.51
3:H:684:VAL:HG11	3:H:739:LEU:HD13	1.93	0.51
2:D:442:PHE:HA	2:D:805:LEU:HD13	1.93	0.51
1:A:777:LEU:HD22	3:C:679:GLU:HG3	1.93	0.50
2:J:503:HIS:NE2	1:G:655:GLU:OE2	2.37	0.50
1:G:563:ILE:HG23	3:H:498:ALA:HB3	1.93	0.50
3:I:655:SER:OG	3:I:656:ILE:N	2.44	0.50
2:J:587:ARG:HG3	2:J:593:SER:HB3	1.91	0.50
1:A:660:ASP:OD2	1:A:660:ASP:N	2.36	0.50
2:J:812:GLY:HA3	2:J:882:ILE:HD11	1.94	0.50
1:A:646:ILE:HG23	1:A:652:VAL:HG21	1.93	0.50
2:J:464:LEU:HD13	2:J:751:LEU:HD13	1.92	0.50
2:J:645:ASP:O	2:J:695:GLN:NE2	2.45	0.50
2:D:804:LEU:HD11	2:D:848:PHE:HZ	1.77	0.50
3:I:815:ASP:N	3:I:815:ASP:OD2	2.45	0.49
1:A:425:GLU:OE2	3:B:858:ARG:NH1	2.45	0.49
3:H:727:ASP:OD1	3:H:799:LYS:NZ	2.44	0.49
3:B:489:ASN:ND2	3:B:591:GLY:O	2.45	0.49
1:G:417:GLU:OE2	3:H:858:ARG:NH1	2.45	0.49
3:C:670:ASP:N	3:C:670:ASP:OD1	2.43	0.49
1:G:423:LEU:HB2	3:H:874:ILE:HD11	1.94	0.49
2:D:450:SER:O	2:D:817:GLN:NE2	2.44	0.49
3:H:452:LEU:HD22	3:H:643:ASP:HB3	1.94	0.49
2:J:804:LEU:HD11	2:J:848:PHE:HZ	1.77	0.49
2:J:133:THR:HG23	2:J:152:ILE:HG13	1.94	0.49
1:G:646:ILE:O	1:G:673:ARG:NH2	2.45	0.49
1:G:661:ASP:OD2	1:G:693:GLN:NE2	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:490:THR:O	3:I:490:THR:OG1	2.30	0.49
3:B:502:ILE:HG12	3:B:556:THR:HG22	1.93	0.49
2:J:215:LYS:HG3	2:J:217:GLU:HG2	1.95	0.49
2:J:415:ASP:HA	2:J:417:GLN:HE21	1.77	0.49
1:G:810:ASP:O	1:G:814:CYS:HA	2.13	0.49
1:A:767:PHE:HB2	1:A:782:VAL:HB	1.94	0.48
2:J:723:LEU:HD23	2:J:726:ILE:HD12	1.94	0.48
1:G:734:ASN:ND2	3:I:819:ASP:OD2	2.46	0.48
2:J:443:ASN:HB3	2:J:589:GLN:HG2	1.93	0.48
3:C:675:ASP:O	3:C:679:GLU:N	2.46	0.48
1:A:622:ASN:HB2	3:C:642:ASP:HB3	1.94	0.48
3:C:551:ILE:HD11	3:C:555:ILE:HD11	1.96	0.48
2:D:524:ARG:NH1	2:D:567:SER:OG	2.47	0.48
2:J:721:LYS:O	2:J:733:HIS:NE2	2.47	0.48
2:J:412:GLY:HA3	2:J:425:THR:HG21	1.95	0.48
1:A:661:ASP:OD2	1:A:693:GLN:NE2	2.47	0.47
1:G:739:ILE:HD13	1:G:775:LEU:HD13	1.96	0.47
3:C:477:PRO:HB2	3:C:478:ILE:H	1.44	0.47
3:C:490:THR:O	3:C:490:THR:OG1	2.31	0.47
2:J:686:SER:OG	2:J:690:LYS:NZ	2.48	0.47
3:I:512:ASN:OD1	3:I:512:ASN:N	2.40	0.47
2:J:159:LYS:O	2:J:163:LEU:N	2.46	0.47
1:G:426:ASP:OD2	2:D:42:LYS:NZ	2.46	0.47
3:H:662:PRO:HD2	3:H:674:PHE:HB3	1.95	0.47
2:D:259:LYS:HE3	2:D:534:GLN:HG2	1.97	0.47
2:J:171:ARG:HH22	3:B:822:GLN:HB3	1.80	0.47
2:D:847:PHE:HA	2:D:850:TYR:HB3	1.96	0.47
3:B:495:ILE:HD11	3:B:631:TYR:HB2	1.95	0.47
3:C:488:PRO:HD2	3:C:491:SER:HB3	1.97	0.47
1:A:420:ASN:HA	1:A:423:LEU:HD12	1.97	0.46
2:D:448:LEU:HB2	2:D:810:ALA:HB1	1.97	0.46
2:J:239:MET:HE1	3:I:770:GLU:HB2	1.97	0.46
3:H:502:ILE:HG12	3:H:556:THR:HG22	1.96	0.46
2:D:50:ASP:OD1	2:D:88:ARG:NH2	2.48	0.46
3:C:662:PRO:HD2	3:C:674:PHE:HB3	1.98	0.46
3:C:505:THR:HG22	3:C:521:LYS:HG3	1.98	0.46
2:J:883:MET:HA	2:J:886:LEU:HD12	1.97	0.46
3:B:662:PRO:HD2	3:B:674:PHE:HB3	1.97	0.46
1:A:785:LEU:HD23	3:C:486:LEU:HD12	1.97	0.46
3:H:577:TYR:OH	3:H:583:LYS:NZ	2.49	0.46
2:J:167:LEU:HD12	2:J:206:TYR:HE2	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:721:LYS:HA	2:J:724:LEU:HB2	1.98	0.46
2:D:802:GLN:O	2:D:806:THR:OG1	2.33	0.46
2:J:394:ILE:O	2:J:901:ARG:NH1	2.45	0.46
2:J:718:THR:OG1	2:J:735:ASN:ND2	2.48	0.46
2:J:146:VAL:HG13	2:J:188:LEU:HD11	1.97	0.46
2:J:448:LEU:HB2	2:J:810:ALA:HB1	1.98	0.46
3:B:670:ASP:OD1	3:B:670:ASP:N	2.49	0.46
3:I:841:ASP:OD1	3:I:841:ASP:N	2.49	0.46
2:D:414:SER:O	2:D:417:GLN:NE2	2.49	0.46
2:D:858:SER:O	2:D:862:ASP:N	2.49	0.46
2:J:380:HIS:NE2	2:J:857:SER:OG	2.39	0.45
3:H:448:VAL:HG23	3:I:476:GLN:HE21	1.81	0.45
3:B:641:SER:HB2	3:B:644:ILE:HG23	1.98	0.45
3:C:771:ASN:OD1	3:C:771:ASN:N	2.50	0.45
3:I:830:ILE:HB	3:I:837:PHE:HB3	1.99	0.45
1:A:806:CYS:O	1:A:819:GLU:HB3	2.16	0.45
2:J:787:LEU:HD11	2:J:807:VAL:HG11	1.98	0.45
2:J:152:ILE:HD12	2:J:152:ILE:HA	1.90	0.45
1:A:813:SER:OG	1:A:815:ASP:OD2	2.34	0.45
3:C:637:SER:O	3:C:639:ARG:N	2.49	0.45
2:D:446:ASP:HB3	2:D:447:TYR:H	1.55	0.45
2:J:574:ASN:O	2:J:578:ASN:ND2	2.43	0.45
3:B:517:ILE:HG23	3:B:536:THR:HB	1.98	0.45
2:D:723:LEU:HA	2:D:726:ILE:HD12	1.98	0.45
3:B:727:ASP:OD2	3:B:799:LYS:NZ	2.42	0.45
3:B:771:ASN:OD1	3:B:771:ASN:N	2.39	0.45
2:D:518:ASP:OD2	2:D:521:ASN:N	2.49	0.45
1:A:662:ILE:HG23	2:D:504:GLN:HG2	1.99	0.45
3:C:748:ASN:OD1	3:C:748:ASN:N	2.47	0.45
1:G:727:SER:HA	1:G:742:ILE:O	2.17	0.45
3:C:574:ILE:HB	3:C:588:LEU:HB2	1.98	0.45
3:C:700:ASN:ND2	3:C:737:ASN:OD1	2.49	0.45
3:H:858:ARG:O	3:H:861:GLN:NE2	2.50	0.45
3:C:846:LEU:O	3:C:850:ILE:HD12	2.16	0.45
2:J:491:PHE:HE1	2:J:508:LYS:HG2	1.82	0.44
2:J:879:MET:O	2:J:883:MET:HG3	2.16	0.44
3:B:750:LYS:O	3:B:750:LYS:NZ	2.40	0.44
3:B:507:LYS:HD3	3:B:517:ILE:HD11	1.99	0.44
3:C:512:ASN:OD1	3:C:512:ASN:N	2.38	0.44
3:H:596:PHE:HB2	3:H:607:LEU:HB3	2.00	0.44
2:J:113:LEU:HD22	3:I:764:LEU:HB2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:459:PHE:HB2	2:D:462:ASN:HB3	1.99	0.44
2:J:23:ARG:NH2	2:J:26:GLN:OE1	2.50	0.44
1:G:687:THR:OG1	1:G:703:ILE:O	2.32	0.44
3:H:450:ARG:NH1	3:I:477:PRO:O	2.50	0.44
3:B:493:SER:OG	3:B:495:ILE:O	2.33	0.44
3:H:658:LYS:HB3	3:H:658:LYS:HE2	1.64	0.44
1:G:680:GLU:OE1	3:I:758:ARG:NH2	2.51	0.44
1:G:748:VAL:HG13	1:G:760:VAL:HG13	1.99	0.44
2:D:112:ILE:HD13	2:D:112:ILE:HA	1.92	0.44
1:A:764:ARG:HA	1:A:764:ARG:HD3	1.81	0.44
3:H:452:LEU:HD23	3:H:452:LEU:HA	1.89	0.44
2:D:862:ASP:HB3	2:D:865:ASN:HD22	1.83	0.44
2:J:99:ASN:OD1	2:J:102:ARG:NH1	2.51	0.43
2:J:112:ILE:HD13	2:J:112:ILE:HA	1.91	0.43
2:J:755:LEU:HA	2:J:758:VAL:HG22	1.99	0.43
3:B:569:SER:OG	3:B:571:ASP:OD1	2.34	0.43
1:G:785:LEU:HD13	3:I:486:LEU:HD23	2.00	0.43
3:C:592:VAL:HG11	3:C:610:ILE:HG23	2.00	0.43
2:D:582:GLU:O	2:D:586:LYS:HB2	2.18	0.43
3:C:522:ASN:HA	3:C:531:THR:HG23	1.99	0.43
3:I:683:LEU:HD11	3:I:686:ASP:HB3	2.00	0.43
2:D:464:LEU:HD22	2:D:751:LEU:HD22	2.01	0.43
2:D:485:SER:HB2	2:D:489:ARG:HH22	1.83	0.43
2:D:722:VAL:HA	2:D:725:HIS:HB3	2.01	0.43
2:D:706:THR:HA	2:D:766:LYS:HA	2.00	0.43
3:C:841:ASP:O	3:C:845:ASN:ND2	2.42	0.43
1:A:777:LEU:HD21	1:A:780:ARG:HB2	2.01	0.43
2:J:275:GLY:O	2:J:602:LYS:NZ	2.43	0.43
3:I:543:ASP:N	3:I:543:ASP:OD1	2.50	0.43
2:D:686:SER:OG	2:D:690:LYS:NZ	2.52	0.43
3:B:505:THR:HA	3:B:520:VAL:O	2.19	0.43
3:C:815:ASP:OD2	3:C:815:ASP:N	2.51	0.43
3:C:844:ARG:HA	3:C:844:ARG:HD2	1.85	0.43
2:D:727:LEU:HD11	2:D:785:GLY:HA3	2.01	0.43
1:G:629:LYS:O	1:G:633:GLU:CB	2.65	0.43
2:J:83:LEU:O	2:J:87:ASN:ND2	2.52	0.42
3:B:596:PHE:HB2	3:B:607:LEU:HB3	2.00	0.42
2:D:278:MET:SD	2:D:278:MET:N	2.91	0.42
1:A:687:THR:OG1	1:A:703:ILE:O	2.31	0.42
2:J:583:ILE:O	2:J:588:ILE:N	2.51	0.42
3:B:758:ARG:O	3:B:762:THR:OG1	2.31	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:858:SER:HA	2:J:861:ASN:HB2	2.01	0.42
3:B:577:TYR:OH	3:B:583:LYS:NZ	2.52	0.42
3:C:742:LYS:HD3	3:C:742:LYS:HA	1.81	0.42
3:I:670:ASP:OD1	3:I:670:ASP:N	2.52	0.42
2:D:408:LYS:HA	2:D:411:ILE:HG12	2.01	0.42
2:D:697:ILE:O	2:D:715:HIS:ND1	2.51	0.42
2:J:724:LEU:O	2:J:728:HIS:N	2.42	0.42
3:H:765:MET:SD	3:H:765:MET:N	2.93	0.42
2:D:715:HIS:CD2	2:D:718:THR:HB	2.54	0.42
2:D:721:LYS:O	2:D:733:HIS:NE2	2.53	0.42
3:B:781:LEU:HD23	3:B:781:LEU:HA	1.92	0.42
3:I:675:ASP:O	3:I:679:GLU:N	2.52	0.42
1:G:799:ARG:HA	1:G:799:ARG:HD3	1.92	0.42
2:J:614:LEU:HD23	2:J:614:LEU:HA	1.91	0.42
2:J:721:LYS:HG2	2:J:724:LEU:HD12	2.02	0.42
2:J:808:LEU:HA	2:J:811:ILE:HD12	2.02	0.42
2:D:602:LYS:HA	2:D:605:LYS:HD2	2.01	0.42
2:J:202:ILE:HG23	2:J:205:ARG:HH21	1.85	0.42
2:J:802:GLN:O	2:J:806:THR:HG23	2.20	0.42
3:C:639:ARG:H	3:C:639:ARG:HG2	1.59	0.42
3:C:641:SER:OG	3:C:643:ASP:OD2	2.33	0.41
1:A:798:VAL:HB	3:C:480:PHE:HA	2.01	0.41
3:C:694:GLN:OE1	3:C:807:ARG:NH2	2.53	0.41
3:H:679:GLU:HG2	3:I:623:LEU:HD12	2.01	0.41
1:A:646:ILE:HG13	1:A:652:VAL:HG11	2.01	0.41
3:B:524:SER:HB3	3:B:529:ARG:HE	1.84	0.41
2:J:423:PRO:HA	2:J:426:ASP:HB2	2.02	0.41
3:H:686:ASP:OD1	3:H:686:ASP:N	2.53	0.41
2:D:124:GLN:H	2:D:124:GLN:HG2	1.66	0.41
1:A:749:ILE:HG22	1:A:750:LYS:HB3	2.02	0.41
3:C:568:CYS:HB3	3:C:597:LEU:HD22	2.03	0.41
1:A:410:LYS:HE3	2:J:24:GLU:HB3	2.02	0.41
3:H:447:THR:HB	3:I:478:ILE:HD13	2.03	0.41
3:I:830:ILE:O	3:I:833:THR:OG1	2.30	0.41
2:J:136:LEU:HD12	2:J:136:LEU:HA	1.88	0.41
3:B:686:ASP:OD1	3:B:686:ASP:N	2.53	0.41
3:I:503:ARG:O	3:I:522:ASN:ND2	2.48	0.41
2:J:784:LYS:HZ3	2:J:841:LYS:HG2	1.86	0.41
3:H:528:GLN:H	3:H:528:GLN:HG3	1.73	0.41
2:D:136:LEU:HD23	2:D:136:LEU:HA	1.92	0.41
3:C:808:LEU:HD22	3:C:813:TYR:HB2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:517:TYR:N	2:D:523:ARG:O	2.53	0.41
3:C:809:SER:HA	3:C:860:VAL:HG11	2.02	0.40
2:D:378:ASP:HA	2:D:381:LYS:HD2	2.03	0.40
2:D:119:LEU:HD22	2:D:132:VAL:HG13	2.04	0.40
3:C:503:ARG:O	3:C:522:ASN:ND2	2.51	0.40
2:D:693:ILE:O	2:D:697:ILE:HG12	2.21	0.40
3:H:495:ILE:HD11	3:H:631:TYR:HB2	2.04	0.40
3:H:808:LEU:HD22	3:H:813:TYR:HB2	2.03	0.40
2:D:510:LEU:HD23	2:D:510:LEU:HA	1.94	0.40

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	270/840 (32%)	254 (94%)	15 (6%)	1 (0%)	34	69
1	G	270/840 (32%)	247 (92%)	22 (8%)	1 (0%)	34	69
2	D	814/1648 (49%)	774 (95%)	37 (4%)	3 (0%)	34	69
2	J	814/1648 (49%)	787 (97%)	24 (3%)	3 (0%)	34	69
3	B	415/875 (47%)	403 (97%)	12 (3%)	0	100	100
3	C	373/875 (43%)	353 (95%)	15 (4%)	5 (1%)	12	41
3	H	415/875 (47%)	399 (96%)	15 (4%)	1 (0%)	47	79
3	I	373/875 (43%)	357 (96%)	14 (4%)	2 (0%)	29	64
All	All	3744/8476 (44%)	3574 (96%)	154 (4%)	16 (0%)	38	69

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	C	477	PRO

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Mol	Chain	Res	Type
3	C	478	ILE
3	C	488	PRO
3	I	488	PRO
1	A	642	GLN
2	J	169	ARG
2	J	174	LEU
3	C	835	SER
3	H	449	PRO
2	D	173	PHE
2	D	486	ASP
2	J	170	HIS
3	C	638	LEU
2	D	266	PRO
3	I	477	PRO
1	G	634	GLU

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	248/753 (33%)	232 (94%)	16 (6%)	17	46
1	G	248/753 (33%)	231 (93%)	17 (7%)	15	44
2	D	769/1528 (50%)	741 (96%)	28 (4%)	35	67
2	J	769/1528 (50%)	752 (98%)	17 (2%)	52	79
3	B	384/790 (49%)	360 (94%)	24 (6%)	18	48
3	C	343/790 (43%)	330 (96%)	13 (4%)	33	66
3	H	384/790 (49%)	363 (94%)	21 (6%)	21	53
3	I	343/790 (43%)	314 (92%)	29 (8%)	10	34
All	All	3488/7722 (45%)	3323 (95%)	165 (5%)	30	59

All (165) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	415	PHE
1	A	424	LEU
1	A	568	MET
1	A	636	THR
1	A	637	THR
1	A	639	CYS
1	A	653	VAL
1	A	697	ARG
1	A	711	ILE
1	A	715	ASP
1	A	750	LYS
1	A	759	LEU
1	A	773	LEU
1	A	777	LEU
1	A	784	ILE
1	A	789	ASN
2	J	66	ARG
2	J	71	ARG
2	J	88	ARG
2	J	105	SER
2	J	121	GLU
2	J	142	SER
2	J	182	MET
2	J	204	GLU
2	J	212	LYS
2	J	213	ASP
2	J	443	ASN
2	J	470	PHE
2	J	486	ASP
2	J	553	LEU
2	J	672	ASN
2	J	783	MET
2	J	848	PHE
3	B	454	ARG
3	B	505	THR
3	B	515	ASN
3	B	546	LEU
3	B	553	LYS
3	B	558	CYS
3	B	562	ASP
3	B	622	LYS
3	B	629	THR
3	B	665	THR

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Mol	Chain	Res	Type
3	B	670	ASP
3	B	673	LEU
3	B	678	MET
3	B	714	PHE
3	B	727	ASP
3	B	741	CYS
3	B	742	LYS
3	B	754	LYS
3	B	759	PHE
3	B	765	MET
3	B	771	ASN
3	B	801	MET
3	B	815	ASP
3	B	819	ASP
3	C	476	GLN
3	C	490	THR
3	C	495	ILE
3	C	497	LEU
3	C	585	MET
3	C	639	ARG
3	C	653	LEU
3	C	670	ASP
3	C	673	LEU
3	C	742	LYS
3	C	771	ASN
3	C	815	ASP
3	C	841	ASP
1	G	554	SER
1	G	555	SER
1	G	633	GLU
1	G	636	THR
1	G	637	THR
1	G	641	LEU
1	G	642	GLN
1	G	660	ASP
1	G	711	ILE
1	G	713	SER
1	G	751	MET
1	G	753	THR
1	G	773	LEU
1	G	791	GLN
1	G	794	HIS

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Mol	Chain	Res	Type
1	G	801	ASN
1	G	813	SER
3	H	454	ARG
3	H	483	THR
3	H	491	SER
3	H	509	SER
3	H	515	ASN
3	H	553	LYS
3	H	558	CYS
3	H	567	PHE
3	H	627	THR
3	H	637	SER
3	H	665	THR
3	H	754	LYS
3	H	758	ARG
3	H	759	PHE
3	H	767	GLU
3	H	790	ARG
3	H	798	SER
3	H	801	MET
3	H	816	ARG
3	H	849	LYS
3	H	870	GLU
3	I	479	ASP
3	I	489	ASN
3	I	490	THR
3	I	503	ARG
3	I	537	SER
3	I	542	GLN
3	I	562	ASP
3	I	578	SER
3	I	585	MET
3	I	605	LEU
3	I	606	CYS
3	I	612	GLU
3	I	628	ASN
3	I	637	SER
3	I	639	ARG
3	I	646	THR
3	I	654	CYS
3	I	670	ASP
3	I	680	THR

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Mol	Chain	Res	Type
3	I	683	LEU
3	I	747	LEU
3	I	754	LYS
3	I	779	SER
3	I	815	ASP
3	I	825	TYR
3	I	840	LYS
3	I	841	ASP
3	I	854	CYS
3	I	856	ASP
2	D	88	ARG
2	D	90	MET
2	D	100	TYR
2	D	134	ASP
2	D	142	SER
2	D	172	LYS
2	D	191	LYS
2	D	211	TYR
2	D	233	LYS
2	D	239	MET
2	D	240	LYS
2	D	249	LEU
2	D	276	ARG
2	D	292	LYS
2	D	377	MET
2	D	384	PHE
2	D	405	PHE
2	D	470	PHE
2	D	482	ASP
2	D	486	ASP
2	D	587	ARG
2	D	672	ASN
2	D	673	TYR
2	D	692	ARG
2	D	715	HIS
2	D	735	ASN
2	D	839	PHE
2	D	848	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	421	GLN
1	A	746	HIS
1	A	789	ASN
2	J	43	ASN
2	J	87	ASN
2	J	110	ASN
2	J	125	HIS
2	J	160	GLN
2	J	162	ASN
2	J	417	GLN
2	J	443	ASN
2	J	487	HIS
2	J	687	GLN
2	J	695	GLN
2	J	735	ASN
3	B	677	ASN
3	B	783	ASN
3	C	548	GLN
3	C	744	ASN
3	C	822	GLN
3	H	861	GLN
3	I	476	GLN
3	I	542	GLN
2	D	72	ASN
2	D	118	ASN
2	D	184	ASN
2	D	585	ASN
2	D	601	ASN
2	D	735	ASN
2	D	802	GLN
2	D	865	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

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.

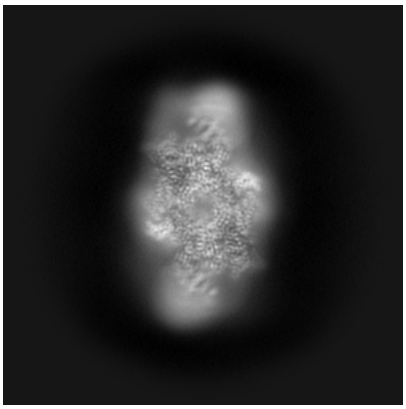
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-40006. These allow visual inspection of the internal detail of the map and identification of artifacts.

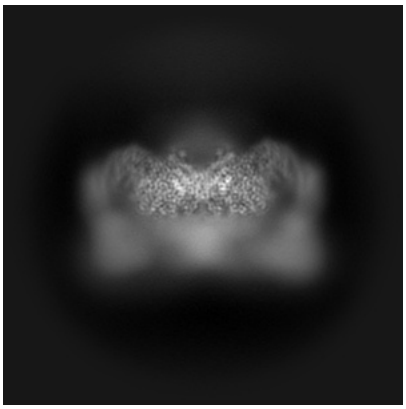
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

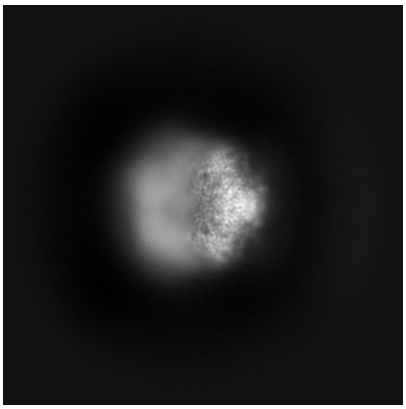
6.1.1 Primary map



X

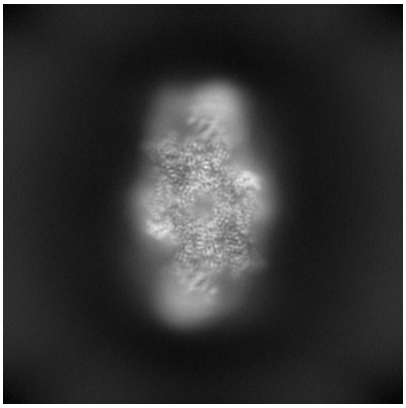


Y

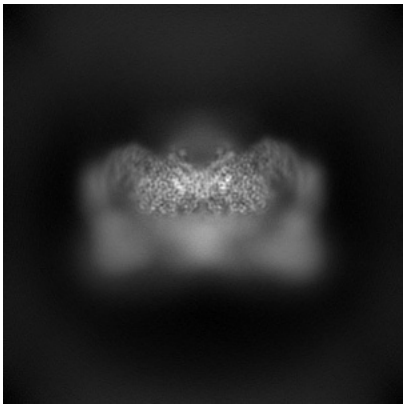


Z

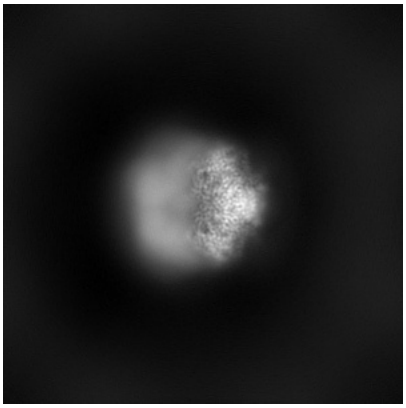
6.1.2 Raw map



X



Y

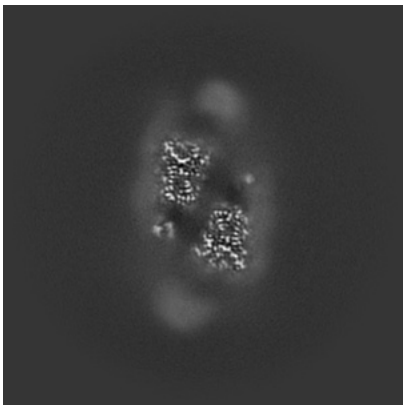


Z

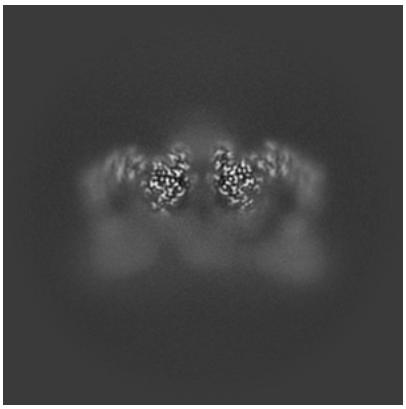
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

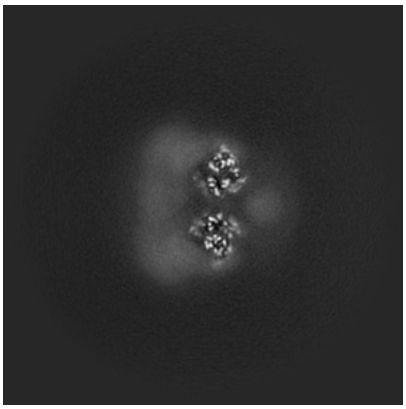
6.2.1 Primary map



X Index: 150

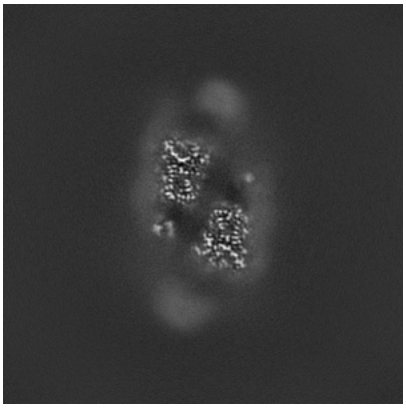


Y Index: 150

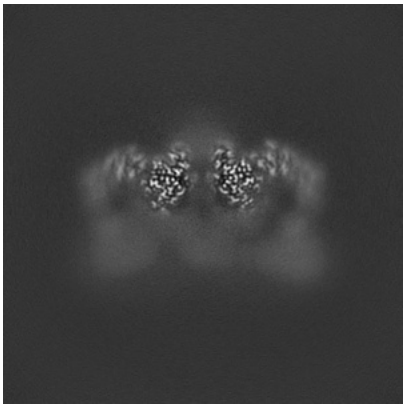


Z Index: 150

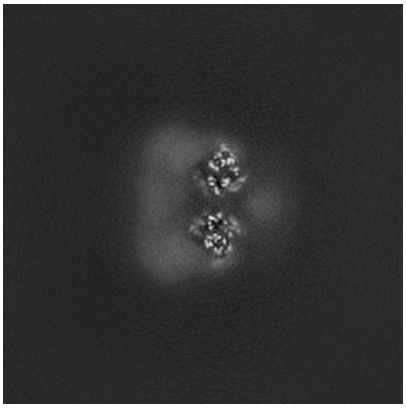
6.2.2 Raw map



X Index: 150



Y Index: 150

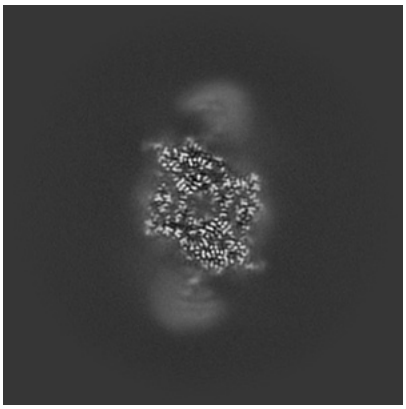


Z Index: 150

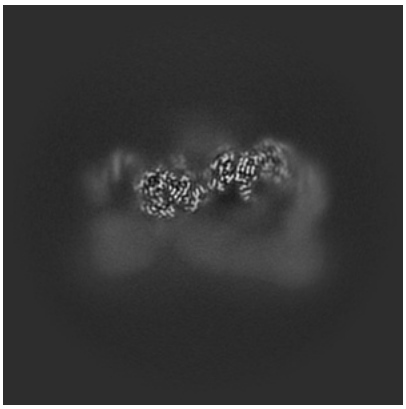
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

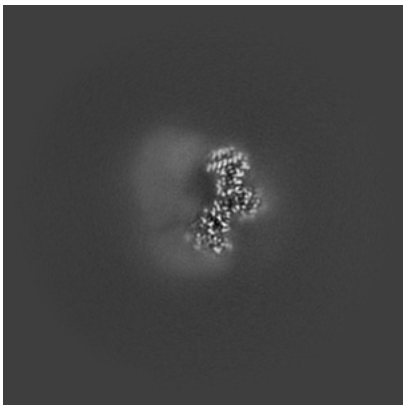
6.3.1 Primary map



X Index: 165

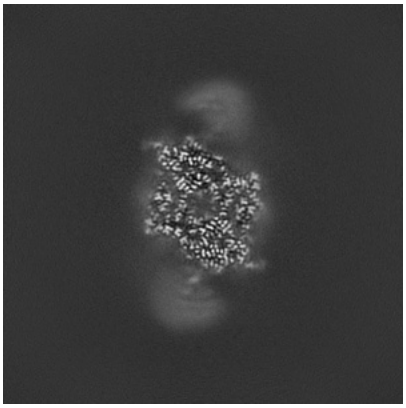


Y Index: 159

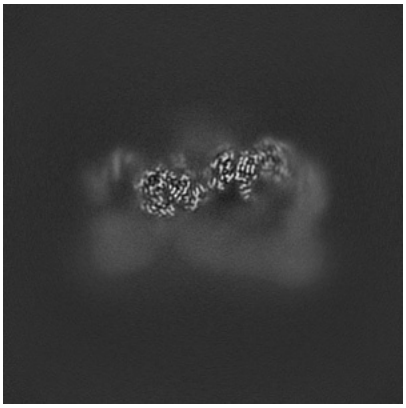


Z Index: 164

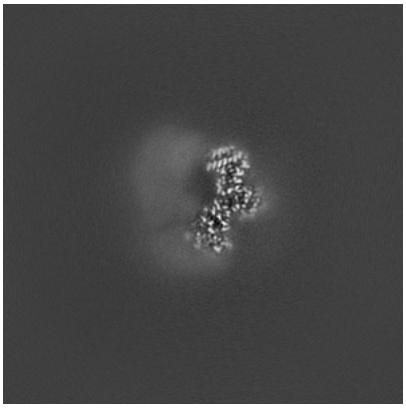
6.3.2 Raw map



X Index: 165



Y Index: 159

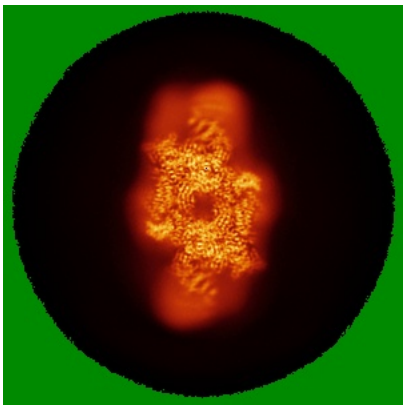


Z Index: 164

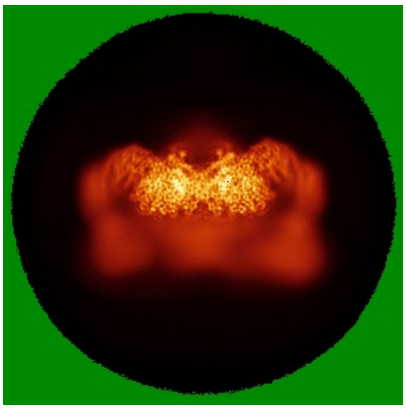
The images above show the largest variance slices of the map in three orthogonal directions.

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

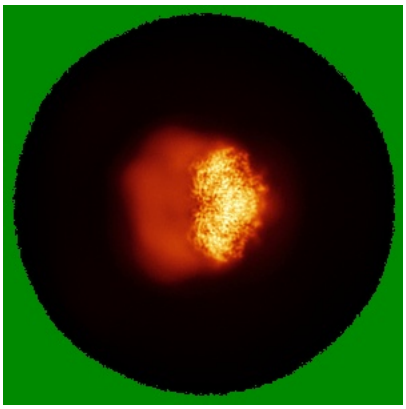
6.4.1 Primary map



X

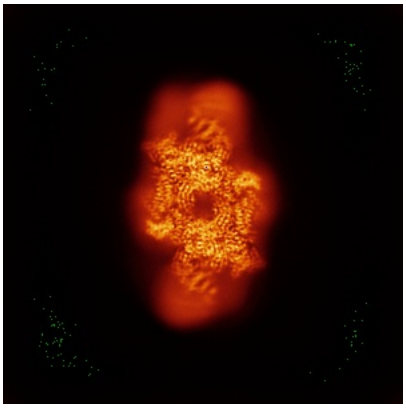


Y

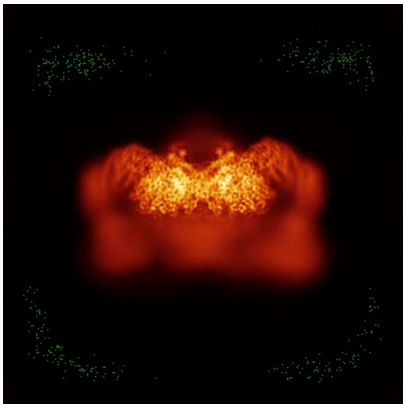


Z

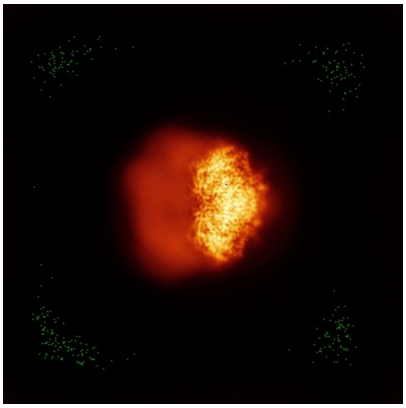
6.4.2 Raw map



X



Y



Z

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

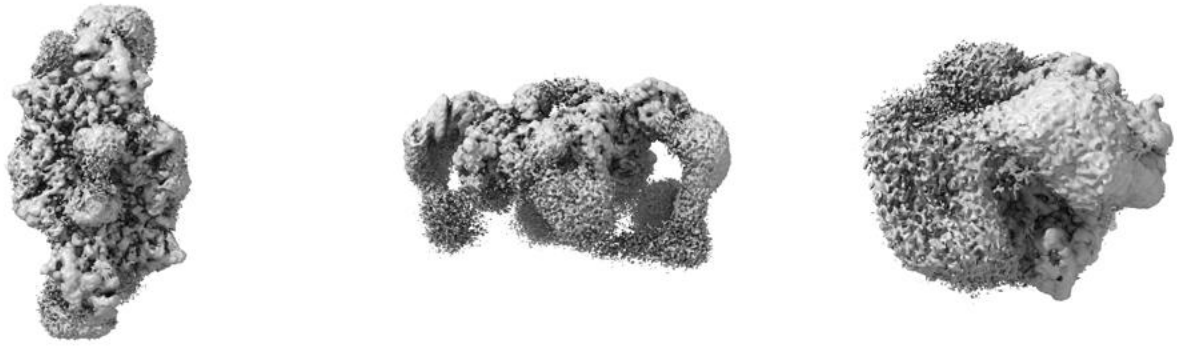
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.315. 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.

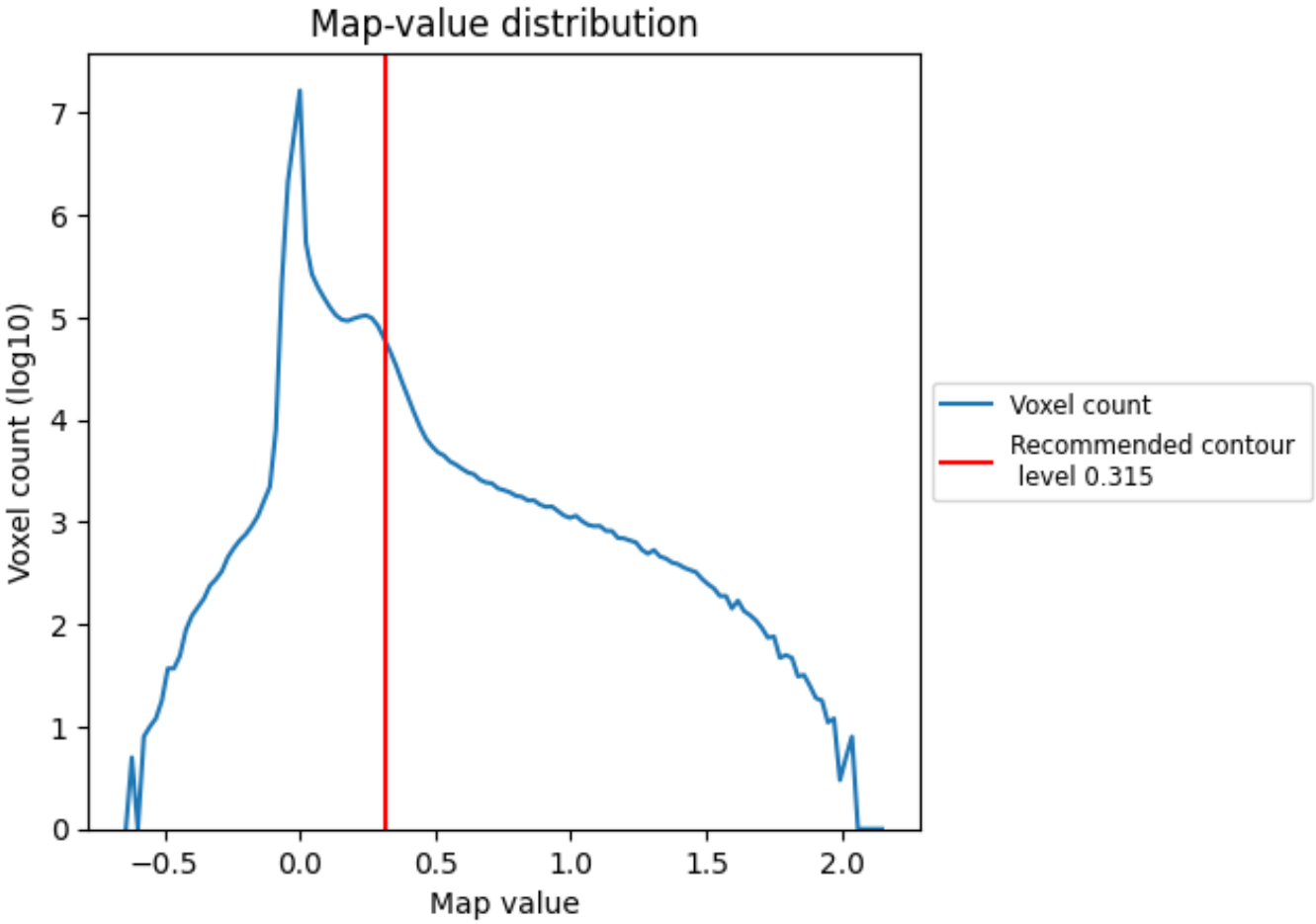
6.6 Mask visualisation (i)

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

7 Map analysis

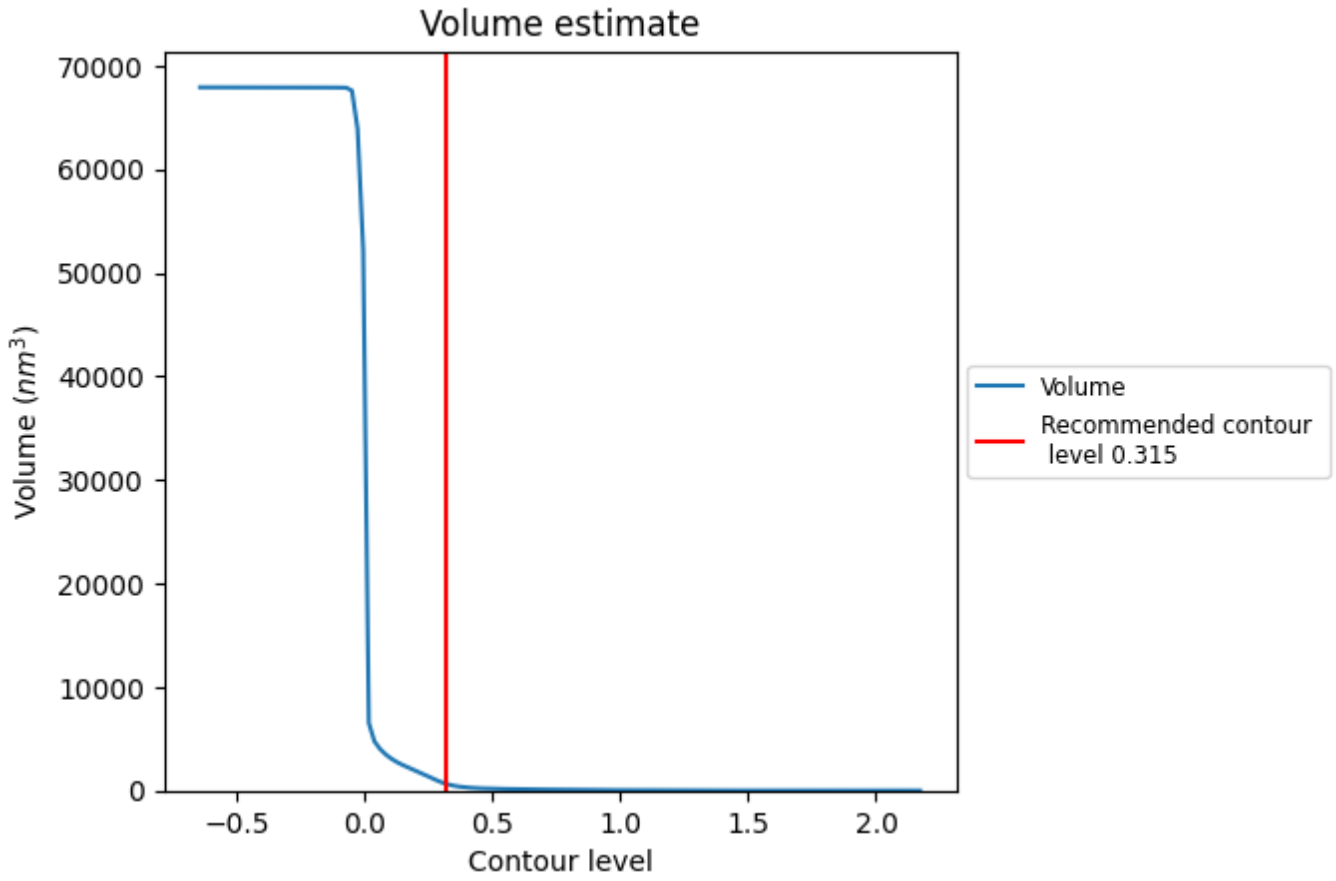
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

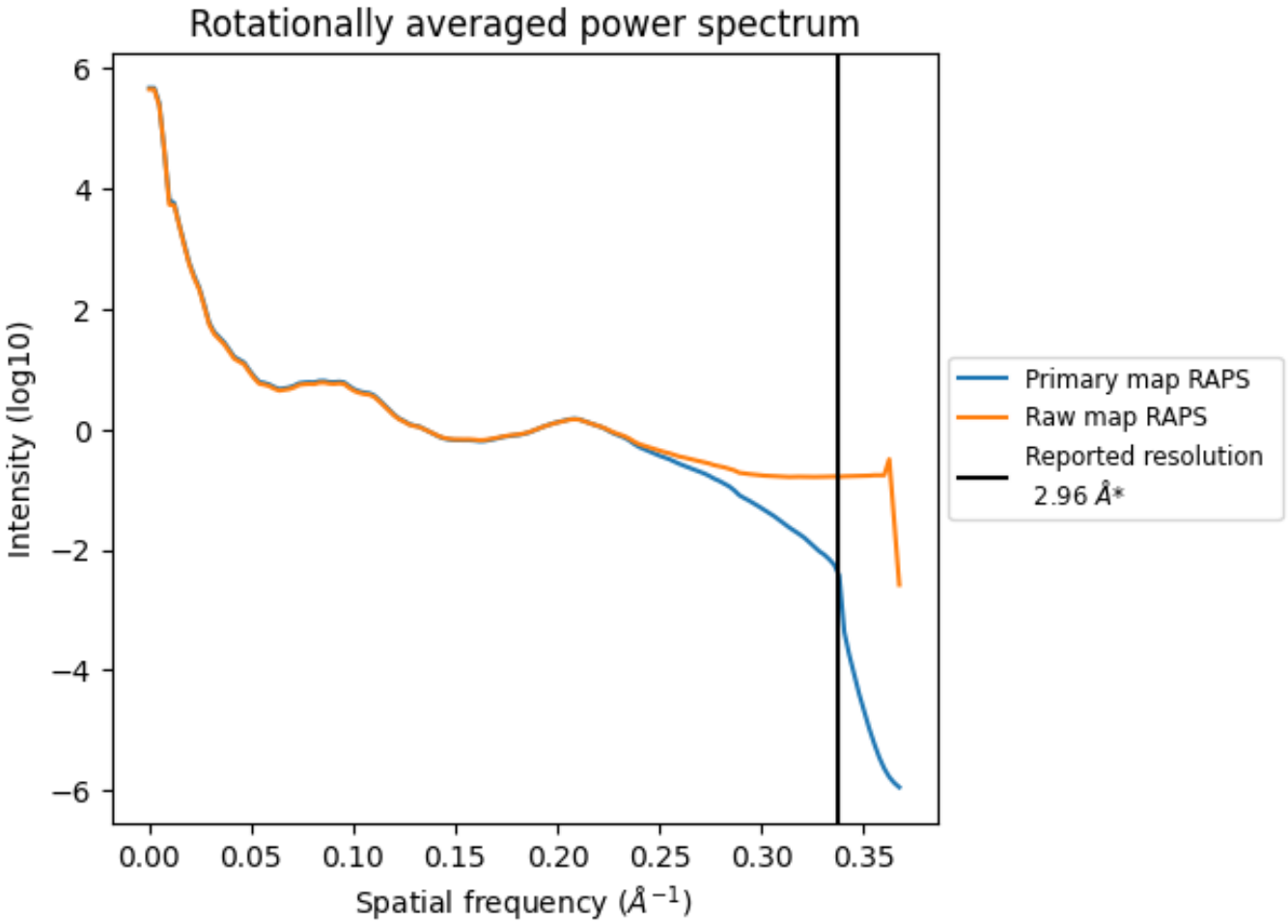
7.2 Volume estimate



The volume at the recommended contour level is 687 nm^3; this corresponds to an approximate mass of 620 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)

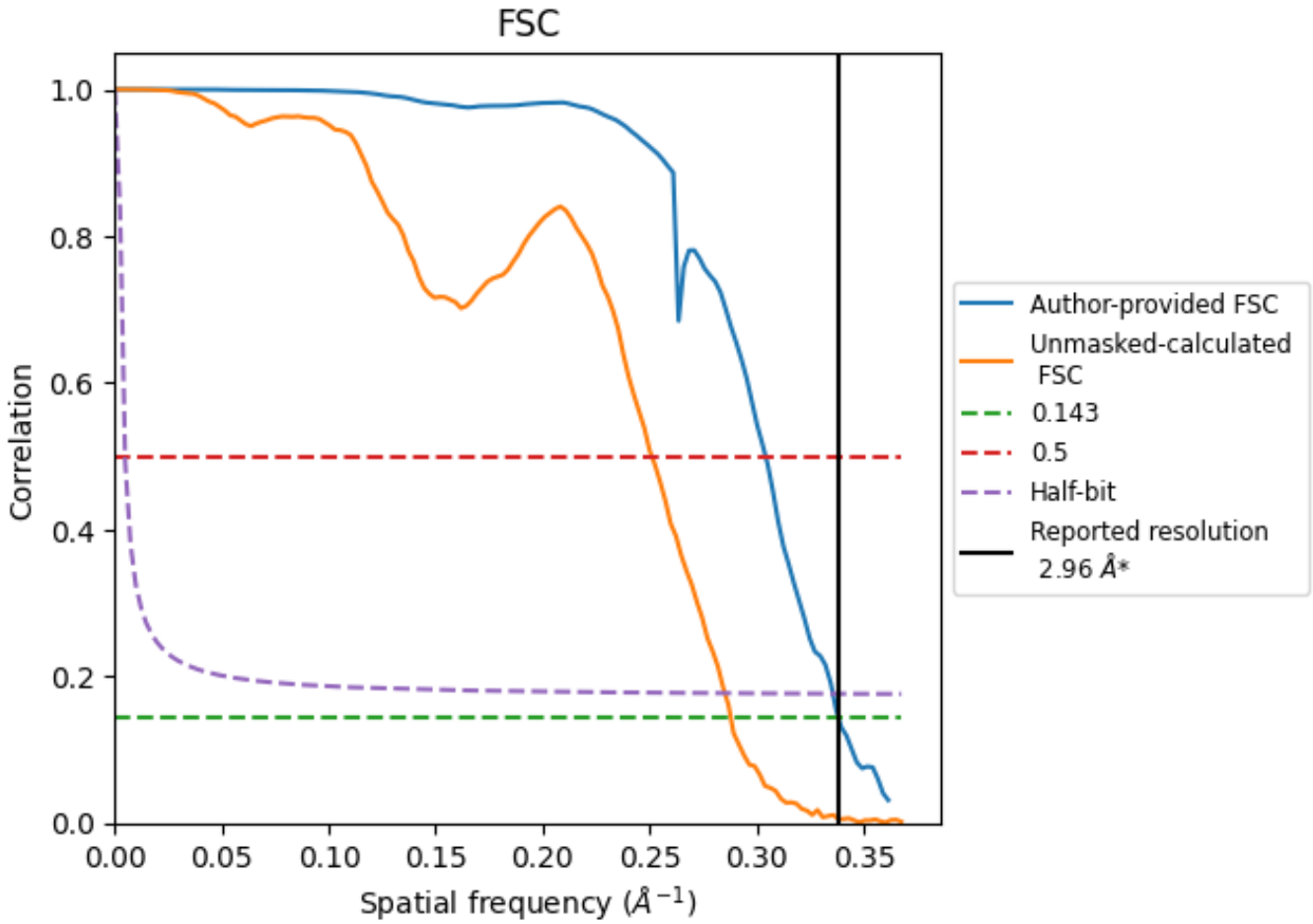


*Reported resolution corresponds to spatial frequency of 0.338 Å^{-1}

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 0.338 Å^{-1}

8.2 Resolution estimates (i)

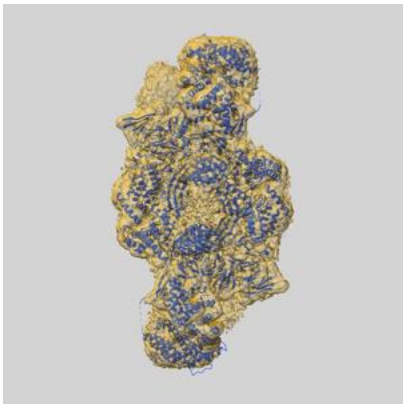
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.96	-	-
Author-provided FSC curve	2.96	3.29	2.98
Unmasked-calculated*	3.47	3.99	3.51

*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 3.47 differs from the reported value 2.96 by more than 10 %

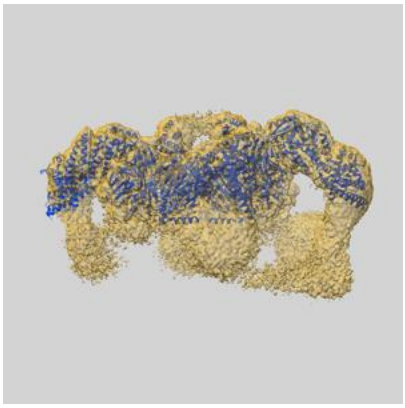
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-40006 and PDB model 8GHL. Per-residue inclusion information can be found in section 3 on page 4.

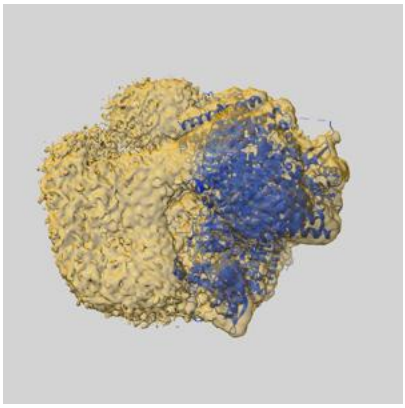
9.1 Map-model overlay



X



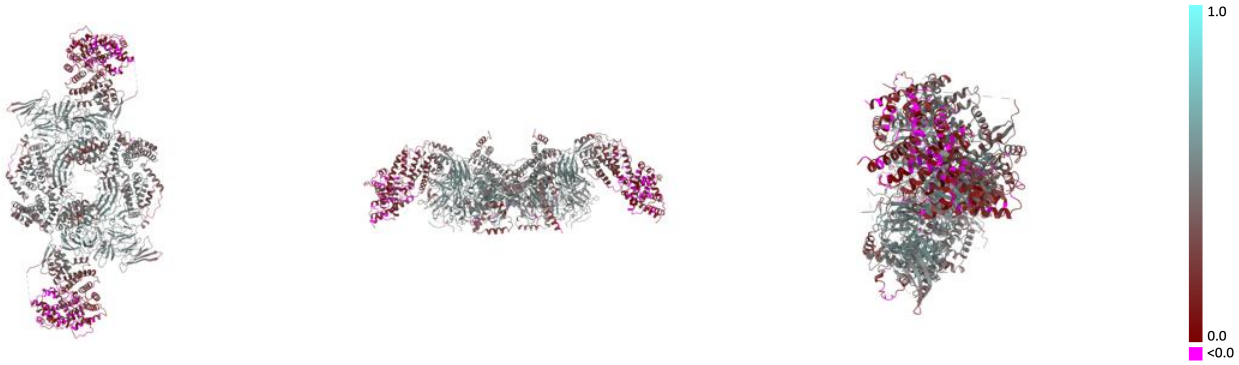
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.315 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.

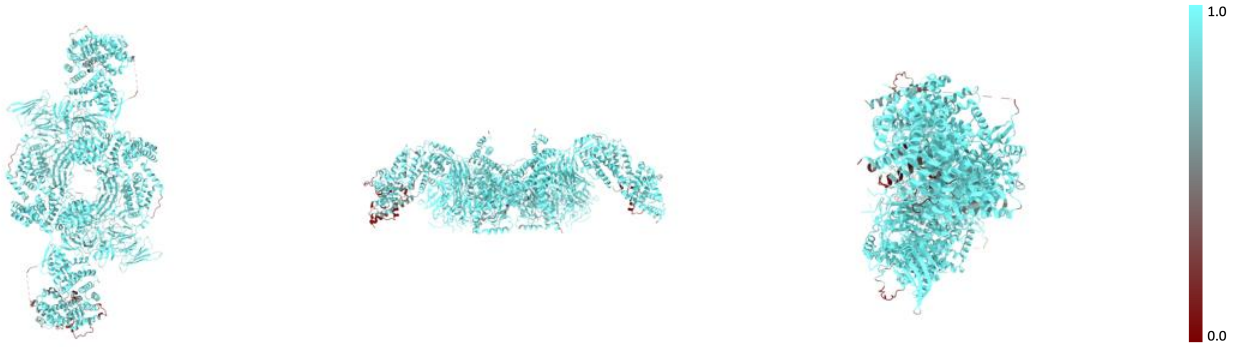
9.2 Q-score mapped to coordinate model (i)



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.

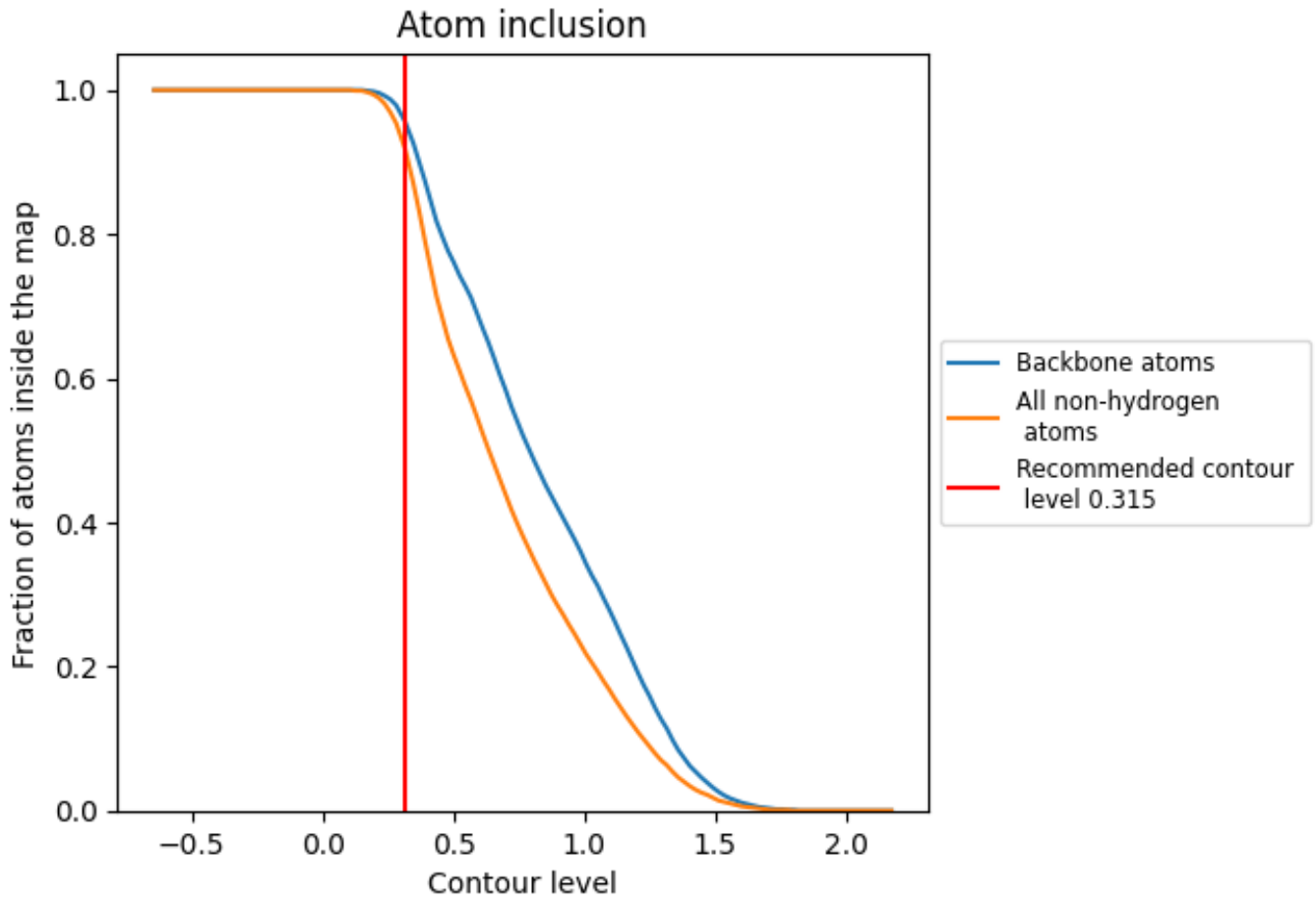
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.315).

9.4 Atom inclusion (i)



At the recommended contour level, 96% of all backbone atoms, 92% 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 (0.315) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9180	0.3810
A	0.9640	0.5000
B	0.9410	0.4660
C	0.9540	0.4930
D	0.9090	0.2540
G	0.9730	0.5000
H	0.9510	0.4660
I	0.9490	0.4960
J	0.8350	0.2460