Full wwPDB EM Validation Report ⓘ

Jan 27, 2025 – 02:41 PM EST

PDB ID	:	9BW5
EMDB ID	:	EMD-44953
Title	:	Human Vault Cage
Authors	:	Lodwick, J.E.; Zhao, M.
Deposited on	:	2024-05-20
Resolution	:	3.30 Å(reported)
Based on initial model	:	4v60

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

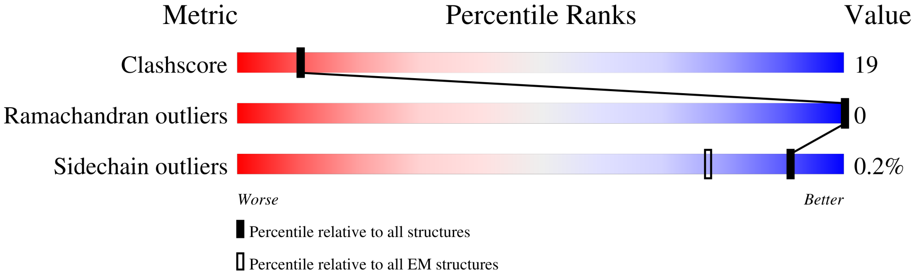
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.30 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	893	
1	B	893	

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 12300 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 Major vault protein.

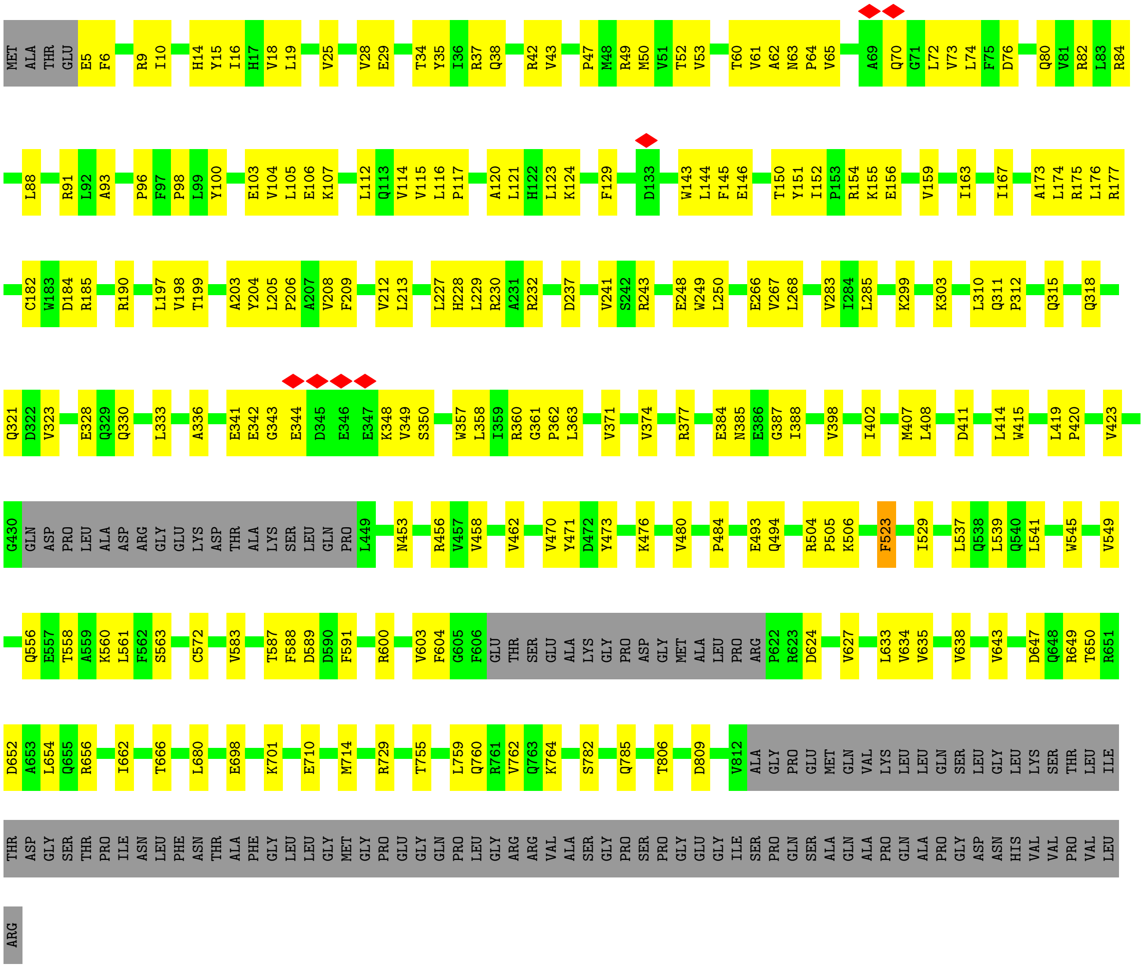
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	775	6150	3874	1099	1167	10	0	0
			Total	C	N	O	S		
1	B	775	6150	3874	1099	1167	10	0	0

3 Residue-property plots

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

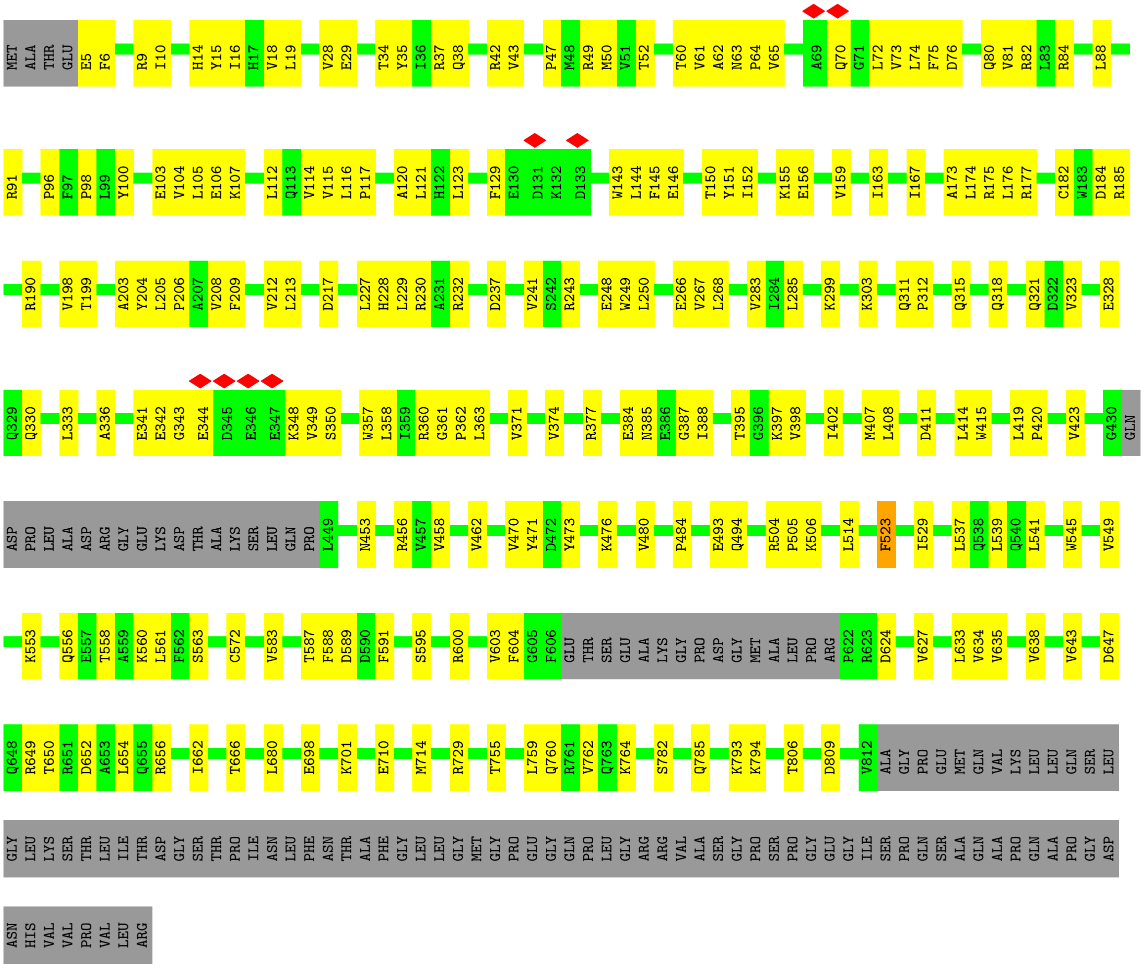
- Molecule 1: Major vault protein

Chain A:



- Molecule 1: Major vault protein

Chain B:


MET ALA THR GLU E5 F6 R9 I10 H14 Y15 I16 H17 V18 L19 V28 E29 T34 Y35 I36 R37 Q38 R42 V43 P47 M48 R49 M50 V51 T52 T60 V61 A62 N63 P64 V65 A69 Q70 G71 L72 V73 L74 F75 D76 Q80 V81 R82 L83 R84 L88
R91 P96 F97 P98 L99 Y100 E103 V104 L105 E106 K107 L112 Q113 V114 V115 L116 P117 A120 L121 H122 L123 F129 E130 D131 K132 D133 W143 L144 F145 E146 T150 Y151 I152 K155 E156 V159 I163 I167 A173 L174 R175 L176 R177 C182 W183 D184 R185
R190 V198 T199 A203 Y204 L205 P206 A207 V208 F209 V212 L213 D217 L227 H228 L229 R230 A231 R232 D237 V241 S242 R243 E248 W249 L250 E266 V267 L268 V283 I284 L285 K299 K303 Q311 P312 Q315 Q318 Q321 D322 V323 E328
Q329 Q330 L333 A336 E341 E342 G343 E344 D345 E346 E347 K348 V349 S350 W357 L358 I359 R360 G361 P362 L363 V371 V374 R377 E384 N385 E386 G387 I388 T395 G396 K397 V398 I402 M407 L408 D411 L414 W415 L419 P420 V423 G430 GLN
ASP PRO LEU ALA ASP ARG GLY GLU LYS ASP THR ALA LYS SER LEU GLN PRO L449 N453 R456 V457 V458 V462 V470 Y471 D472 Y473 K476 V480 P484 E493 Q494 R504 P505 K506 L514 F523 I529 L537 Q538 L539 Q540 L541 W545 V549
K553 Q556 E557 T558 A559 K560 L561 F562 S563 C572 V583 T587 F588 D589 D590 F591 S595 R600 V603 F604 G605 F606 GLU THR SER GLU ALA LYS GLY PRO ASP GLY MET ALA LEU PRO ARG P622 R623 D624 V627 L633 V634 V635 V638 V643 D647
Q648 R649 T650 R651 D652 A653 L654 Q655 R656 I662 T666 L680 E698 K701 E710 M714 R729 T755 L759 Q760 R761 V762 Q763 K764 S782 Q785 K793 K794 T806 D809 V812 ALA GLY PRO GLU MET GLN VAL LYS LEU LEU GLN SER LEU
GLY LEU LYS SER THR LEU ILE THR ASP GLY SER THR PRO ILE ASN LEU PHE ASN THR ALA PHE GLY LEU LEU GLY MET GLY PRO GLU GLY GLN PRO LEU GLY ARG ARG VAL ALA SER GLY PRO SER PRO GLY GLU GLY ILE SER PRO GLN SER ALA GLN ALA PRO GLN ALA PRO GLY ASP
ASN HIS VAL VAL PRO VAL LEU ARG

4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D39	Depositor
Number of particles used	98674	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; CTF correction was performed when movies were imported into cryoSPARC Live	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	45	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	64000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.136	Depositor
Minimum map value	-0.938	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.050	Depositor
Recommended contour level	0.3	Depositor
Map size (Å)	1075.2, 1075.2, 1075.2	wwPDB
Map dimensions	800, 800, 800	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.344, 1.344, 1.344	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	0.46	0/6259	0.56	0/8488
1	B	0.46	0/6259	0.56	0/8488
All	All	0.46	0/12518	0.56	0/16976

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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	6150	0	6183	231	0
1	B	6150	0	6183	229	0
All	All	12300	0	12366	458	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 19.

All (458) 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:182:CYS:SG	1:A:209:PHE:CD1	2.26	1.28
1:B:182:CYS:SG	1:B:209:PHE:CD1	2.26	1.26

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:523:PHE:CE2	1:B:545:TRP:CD1	2.24	1.24
1:A:523:PHE:CE2	1:A:545:TRP:CD1	2.24	1.22
1:A:523:PHE:CD2	1:A:545:TRP:CD1	2.39	1.11
1:B:523:PHE:CD2	1:B:545:TRP:CD1	2.39	1.11
1:A:523:PHE:HE2	1:A:545:TRP:CG	1.71	1.09
1:B:182:CYS:SG	1:B:209:PHE:CE1	2.46	1.09
1:B:523:PHE:HE2	1:B:545:TRP:CG	1.71	1.08
1:A:523:PHE:CE2	1:A:545:TRP:CG	2.42	1.08
1:A:182:CYS:SG	1:A:209:PHE:CE1	2.46	1.07
1:A:333:LEU:HD13	1:A:377:ARG:HH12	1.13	1.06
1:A:333:LEU:CD1	1:A:377:ARG:HH12	1.68	1.06
1:B:523:PHE:CE2	1:B:545:TRP:CG	2.42	1.06
1:A:333:LEU:HB2	1:A:377:ARG:NH1	1.71	1.06
1:B:333:LEU:CD1	1:B:377:ARG:HH12	1.68	1.06
1:B:333:LEU:HD13	1:B:377:ARG:HH12	1.13	1.05
1:B:333:LEU:HB2	1:B:377:ARG:NH1	1.71	1.04
1:A:333:LEU:HD13	1:A:377:ARG:NH1	1.75	1.02
1:B:333:LEU:HD13	1:B:377:ARG:NH1	1.75	1.01
1:A:539:LEU:HB3	1:A:541:LEU:HD11	1.43	1.01
1:B:539:LEU:HB3	1:B:541:LEU:HD11	1.43	1.00
1:A:333:LEU:HD22	1:A:377:ARG:NH2	1.77	0.98
1:B:333:LEU:HD22	1:B:377:ARG:NH2	1.77	0.98
1:B:649:ARG:HG3	1:B:649:ARG:HH11	1.32	0.95
1:A:649:ARG:HG3	1:A:649:ARG:HH11	1.32	0.94
1:A:182:CYS:HG	1:A:209:PHE:HD1	1.20	0.90
1:A:303:LYS:NZ	1:A:323:VAL:CG2	2.35	0.90
1:B:303:LYS:NZ	1:B:323:VAL:CG2	2.35	0.89
1:A:358:LEU:HD13	1:A:377:ARG:HD2	1.55	0.89
1:A:14:HIS:CE1	1:A:49:ARG:HG2	2.07	0.89
1:B:303:LYS:HZ1	1:B:323:VAL:HG21	1.38	0.89
1:A:650:THR:O	1:A:654:LEU:HD23	1.73	0.88
1:A:303:LYS:HZ2	1:A:323:VAL:HG22	1.39	0.88
1:B:14:HIS:CE1	1:B:49:ARG:HG2	2.07	0.88
1:B:650:THR:O	1:B:654:LEU:HD23	1.72	0.88
1:B:182:CYS:HG	1:B:209:PHE:HD1	1.22	0.87
1:A:333:LEU:HD22	1:A:377:ARG:HH22	1.39	0.86
1:B:358:LEU:HD13	1:B:377:ARG:HD2	1.55	0.86
1:B:175:ARG:HB2	1:B:213:LEU:HB2	1.58	0.86
1:A:18:VAL:HG12	1:A:43:VAL:HG22	1.58	0.85
1:B:303:LYS:HZ1	1:B:323:VAL:CG2	1.88	0.85
1:B:18:VAL:HG12	1:B:43:VAL:HG22	1.59	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:175:ARG:HB2	1:A:213:LEU:HB2	1.58	0.84
1:A:182:CYS:SG	1:A:209:PHE:HD1	1.98	0.84
1:B:348:LYS:HD3	1:B:348:LYS:H	1.42	0.83
1:A:348:LYS:H	1:A:348:LYS:HD3	1.42	0.83
1:B:343:GLY:HA2	1:B:348:LYS:HA	1.60	0.82
1:B:333:LEU:HD22	1:B:377:ARG:HH22	1.40	0.82
1:B:123:LEU:HB2	1:B:143:TRP:HB2	1.61	0.82
1:B:303:LYS:NZ	1:B:323:VAL:HG22	1.95	0.82
1:A:303:LYS:NZ	1:A:323:VAL:HG22	1.95	0.81
1:A:343:GLY:HA2	1:A:348:LYS:HA	1.60	0.81
1:A:123:LEU:HB2	1:A:143:TRP:HB2	1.61	0.80
1:B:303:LYS:HZ2	1:B:323:VAL:HG22	1.45	0.80
1:B:16:ILE:HG12	1:B:29:GLU:HB2	1.65	0.79
1:A:16:ILE:HG12	1:A:29:GLU:HB2	1.65	0.78
1:B:333:LEU:CB	1:B:377:ARG:NH1	2.47	0.78
1:B:182:CYS:SG	1:B:209:PHE:HD1	1.98	0.77
1:A:506:LYS:HD2	1:A:572:CYS:SG	2.25	0.77
1:A:333:LEU:CB	1:A:377:ARG:HH12	1.99	0.76
1:A:333:LEU:CB	1:A:377:ARG:NH1	2.47	0.76
1:B:506:LYS:HD2	1:B:572:CYS:SG	2.25	0.76
1:B:358:LEU:HD13	1:B:377:ARG:HH11	1.49	0.75
1:A:333:LEU:CD2	1:A:377:ARG:HH22	1.99	0.75
1:A:358:LEU:HD13	1:A:377:ARG:HH11	1.49	0.75
1:B:333:LEU:CB	1:B:377:ARG:HH12	1.99	0.74
1:B:333:LEU:CD2	1:B:377:ARG:HH22	1.99	0.74
1:A:303:LYS:HZ1	1:A:323:VAL:CG2	2.00	0.74
1:A:303:LYS:HZ1	1:A:323:VAL:HG21	1.53	0.73
1:B:627:VAL:HG22	1:B:634:VAL:HG13	1.70	0.73
1:A:333:LEU:HB2	1:A:377:ARG:HH12	1.54	0.73
1:A:627:VAL:HG22	1:A:634:VAL:HG13	1.70	0.73
1:B:333:LEU:HB2	1:B:377:ARG:HH12	1.54	0.73
1:B:384:GLU:O	1:B:385:ASN:CG	2.28	0.72
1:A:384:GLU:O	1:A:385:ASN:CG	2.28	0.71
1:A:174:LEU:HD11	1:A:212:VAL:HG13	1.73	0.71
1:A:336:ALA:HB2	1:A:357:TRP:HZ3	1.55	0.71
1:B:230:ARG:HB2	1:B:248:GLU:HG2	1.73	0.71
1:B:539:LEU:HB3	1:B:541:LEU:CD1	2.20	0.71
1:B:174:LEU:HD11	1:B:212:VAL:HG13	1.73	0.70
1:A:506:LYS:NZ	1:A:523:PHE:HB2	2.06	0.70
1:A:348:LYS:HD3	1:A:348:LYS:N	2.07	0.70
1:B:336:ALA:HB2	1:B:357:TRP:HZ3	1.55	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:348:LYS:HD3	1:B:348:LYS:N	2.07	0.70
1:B:506:LYS:NZ	1:B:523:PHE:HB2	2.06	0.70
1:A:348:LYS:H	1:A:348:LYS:CD	2.05	0.70
1:A:230:ARG:HB2	1:A:248:GLU:HG2	1.73	0.69
1:B:480:VAL:HG11	1:B:558:THR:HB	1.74	0.69
1:B:333:LEU:CG	1:B:377:ARG:HH12	2.05	0.69
1:B:523:PHE:CD2	1:B:545:TRP:NE1	2.61	0.69
1:A:121:LEU:HB2	1:A:145:PHE:HB3	1.75	0.69
1:A:333:LEU:CG	1:A:377:ARG:HH12	2.05	0.69
1:A:539:LEU:HB3	1:A:541:LEU:CD1	2.20	0.69
1:A:303:LYS:NZ	1:A:323:VAL:HG21	2.07	0.69
1:B:348:LYS:H	1:B:348:LYS:CD	2.05	0.69
1:B:121:LEU:HB2	1:B:145:PHE:HB3	1.75	0.69
1:A:182:CYS:HB2	1:A:209:PHE:CE1	2.28	0.68
1:B:182:CYS:HB2	1:B:209:PHE:CE1	2.28	0.68
1:B:61:VAL:HB	1:B:91:ARG:HH21	1.58	0.68
1:A:523:PHE:CD2	1:A:545:TRP:NE1	2.61	0.68
1:A:19:LEU:HD22	1:A:42:ARG:HH21	1.57	0.68
1:B:19:LEU:HD22	1:B:42:ARG:HH21	1.57	0.68
1:B:177:ARG:HB2	1:B:213:LEU:HD11	1.75	0.68
1:B:649:ARG:HG3	1:B:649:ARG:NH1	2.05	0.67
1:A:177:ARG:HB2	1:A:213:LEU:HD11	1.75	0.67
1:A:480:VAL:HG11	1:A:558:THR:HB	1.74	0.67
1:B:5:GLU:N	1:B:37:ARG:NH1	2.43	0.67
1:B:184:ASP:HB2	1:B:190:ARG:HE	1.60	0.67
1:A:61:VAL:HB	1:A:91:ARG:HH21	1.58	0.67
1:A:184:ASP:HB2	1:A:190:ARG:HE	1.60	0.67
1:B:182:CYS:CB	1:B:209:PHE:CE1	2.77	0.67
1:B:473:TYR:O	1:B:476:LYS:HD2	1.94	0.67
1:A:182:CYS:CB	1:A:209:PHE:CE1	2.77	0.67
1:A:473:TYR:O	1:A:476:LYS:HD2	1.94	0.67
1:B:182:CYS:CB	1:B:209:PHE:CD1	2.78	0.67
1:A:5:GLU:N	1:A:37:ARG:NH1	2.43	0.66
1:A:182:CYS:CB	1:A:209:PHE:CD1	2.78	0.66
1:A:14:HIS:NE2	1:A:49:ARG:HG2	2.11	0.65
1:A:303:LYS:HZ2	1:A:323:VAL:CG2	2.01	0.65
1:A:649:ARG:HG3	1:A:649:ARG:NH1	2.05	0.65
1:B:303:LYS:NZ	1:B:323:VAL:HG21	2.07	0.65
1:A:523:PHE:HD2	1:A:545:TRP:NE1	1.96	0.64
1:B:523:PHE:HD2	1:B:545:TRP:NE1	1.96	0.64
1:B:14:HIS:NE2	1:B:49:ARG:HG2	2.11	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:358:LEU:CD1	1:A:377:ARG:HD2	2.28	0.64
1:B:112:LEU:HD21	1:B:152:ILE:HG22	1.80	0.64
1:A:9:ARG:HA	1:A:34:THR:HA	1.80	0.64
1:A:74:LEU:HB3	1:A:82:ARG:HD3	1.80	0.64
1:B:206:PRO:HB3	1:B:212:VAL:HG23	1.80	0.64
1:B:9:ARG:HA	1:B:34:THR:HA	1.80	0.63
1:B:358:LEU:CD1	1:B:377:ARG:HD2	2.28	0.63
1:A:112:LEU:HD21	1:A:152:ILE:HG22	1.80	0.63
1:B:74:LEU:HB3	1:B:82:ARG:HD3	1.80	0.63
1:A:174:LEU:HD21	1:A:212:VAL:HG22	1.82	0.62
1:A:206:PRO:HB3	1:A:212:VAL:HG23	1.80	0.62
1:B:174:LEU:HD21	1:B:212:VAL:HG22	1.82	0.61
1:B:419:LEU:HD11	1:B:458:VAL:HG11	1.82	0.61
1:A:419:LEU:HD11	1:A:458:VAL:HG11	1.82	0.61
1:A:333:LEU:HD13	1:A:377:ARG:CZ	2.31	0.60
1:B:755:THR:O	1:B:759:LEU:HG	2.02	0.60
1:B:115:VAL:HG21	1:B:121:LEU:HG	1.84	0.60
1:A:115:VAL:HG21	1:A:121:LEU:HG	1.84	0.59
1:B:333:LEU:HD13	1:B:377:ARG:CZ	2.31	0.59
1:A:303:LYS:HZ1	1:A:323:VAL:CG1	2.15	0.59
1:B:336:ALA:HB2	1:B:357:TRP:CZ3	2.36	0.59
1:B:129:PHE:CG	1:B:156:GLU:HG3	2.38	0.59
1:B:303:LYS:NZ	1:B:323:VAL:CG1	2.66	0.58
1:B:647:ASP:OD2	1:B:649:ARG:HB2	2.03	0.58
1:A:539:LEU:HG	1:A:643:VAL:HG22	1.84	0.58
1:A:647:ASP:OD2	1:A:649:ARG:HB2	2.03	0.58
1:A:303:LYS:NZ	1:A:323:VAL:CG1	2.66	0.58
1:A:336:ALA:HB2	1:A:357:TRP:CZ3	2.36	0.58
1:A:755:THR:O	1:A:759:LEU:HG	2.02	0.58
1:B:15:TYR:CD2	1:B:50:MET:HG2	2.39	0.58
1:A:15:TYR:HD2	1:A:50:MET:HG2	1.68	0.58
1:A:38:GLN:N	1:A:38:GLN:OE1	2.37	0.58
1:B:470:VAL:HG11	1:B:493:GLU:OE1	2.04	0.58
1:B:38:GLN:N	1:B:38:GLN:OE1	2.37	0.58
1:B:229:LEU:HD23	1:B:267:VAL:HA	1.86	0.58
1:A:129:PHE:CG	1:A:156:GLU:HG3	2.38	0.58
1:A:15:TYR:CD2	1:A:50:MET:HG2	2.39	0.57
1:A:529:ILE:HD12	1:A:583:VAL:HG11	1.86	0.57
1:B:15:TYR:HD2	1:B:50:MET:HG2	1.68	0.57
1:B:529:ILE:HD12	1:B:583:VAL:HG11	1.86	0.57
1:A:65:VAL:O	1:A:84:ARG:NH2	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:539:LEU:HG	1:B:643:VAL:HG22	1.84	0.57
1:A:144:LEU:HG	1:A:208:VAL:HG13	1.85	0.57
1:A:541:LEU:N	1:A:541:LEU:HD12	2.20	0.57
1:B:144:LEU:HG	1:B:208:VAL:HG13	1.86	0.57
1:A:470:VAL:HG11	1:A:493:GLU:OE1	2.04	0.56
1:A:229:LEU:HD23	1:A:267:VAL:HA	1.86	0.56
1:A:650:THR:O	1:A:654:LEU:CD2	2.52	0.56
1:B:18:VAL:HG11	1:B:35:TYR:CE2	2.40	0.56
1:B:537:LEU:HD11	1:B:591:PHE:CE2	2.39	0.56
1:B:698:GLU:HA	1:B:701:LYS:HZ3	1.70	0.56
1:A:537:LEU:HD11	1:A:591:PHE:CE2	2.40	0.56
1:B:70:GLN:HB2	1:B:72:LEU:HG	1.88	0.56
1:A:175:ARG:CB	1:A:213:LEU:HB2	2.35	0.56
1:B:318:GLN:HB2	1:B:321:GLN:HE21	1.71	0.56
1:B:541:LEU:HD12	1:B:541:LEU:N	2.20	0.56
1:B:65:VAL:O	1:B:84:ARG:NH2	2.38	0.56
1:A:18:VAL:HG11	1:A:35:TYR:CE2	2.40	0.56
1:A:60:THR:OG1	1:A:107:LYS:HB2	2.06	0.56
1:A:318:GLN:HB2	1:A:321:GLN:HE21	1.71	0.56
1:A:70:GLN:HB2	1:A:72:LEU:HG	1.88	0.55
1:B:182:CYS:HB2	1:B:209:PHE:CZ	2.42	0.55
1:B:14:HIS:NE2	1:B:49:ARG:CG	2.70	0.55
1:B:176:LEU:HD11	1:B:204:TYR:CE2	2.42	0.55
1:A:176:LEU:HD11	1:A:204:TYR:CE2	2.42	0.55
1:A:163:ILE:HD12	1:A:206:PRO:HG2	1.88	0.55
1:B:60:THR:OG1	1:B:107:LYS:HB2	2.06	0.55
1:B:62:ALA:N	1:B:104:VAL:O	2.35	0.54
1:B:163:ILE:HD12	1:B:206:PRO:HG2	1.88	0.54
1:A:14:HIS:NE2	1:A:49:ARG:CG	2.70	0.54
1:A:62:ALA:N	1:A:104:VAL:O	2.35	0.54
1:A:182:CYS:HB2	1:A:209:PHE:CZ	2.42	0.54
1:A:470:VAL:CG1	1:A:493:GLU:OE1	2.56	0.54
1:B:649:ARG:HH11	1:B:649:ARG:CG	2.13	0.54
1:A:398:VAL:HG11	1:A:415:TRP:CE3	2.43	0.53
1:B:650:THR:O	1:B:654:LEU:CD2	2.52	0.53
1:B:470:VAL:CG1	1:B:493:GLU:OE1	2.56	0.53
1:B:303:LYS:HZ3	1:B:323:VAL:HG13	1.72	0.53
1:B:398:VAL:HG11	1:B:415:TRP:CE3	2.43	0.53
1:A:243:ARG:HG2	1:A:249:TRP:CE3	2.44	0.53
1:B:243:ARG:HG2	1:B:249:TRP:CE3	2.44	0.53
1:B:185:ARG:HD2	1:B:204:TYR:HE1	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:73:VAL:HG21	1:A:100:TYR:CZ	2.45	0.52
1:B:76:ASP:N	1:B:80:GLN:O	2.42	0.52
1:B:358:LEU:HD13	1:B:377:ARG:NH1	2.23	0.52
1:A:185:ARG:HD2	1:A:204:TYR:HE1	1.74	0.52
1:A:539:LEU:HD21	1:A:591:PHE:HZ	1.74	0.52
1:A:649:ARG:HH11	1:A:649:ARG:CG	2.13	0.52
1:B:539:LEU:HD21	1:B:591:PHE:HZ	1.74	0.52
1:A:303:LYS:HZ1	1:A:323:VAL:HG11	1.73	0.52
1:B:73:VAL:HG21	1:B:100:TYR:CZ	2.45	0.52
1:B:420:PRO:O	1:B:423:VAL:HG12	2.10	0.52
1:B:229:LEU:HD21	1:B:267:VAL:HG22	1.92	0.52
1:A:420:PRO:O	1:A:423:VAL:HG12	2.10	0.51
1:A:76:ASP:N	1:A:80:GLN:O	2.42	0.51
1:A:358:LEU:HD13	1:A:377:ARG:NH1	2.23	0.51
1:B:360:ARG:HG2	1:B:361:GLY:N	2.25	0.51
1:A:523:PHE:CE2	1:A:545:TRP:CB	2.94	0.51
1:A:539:LEU:O	1:A:541:LEU:CD1	2.59	0.51
1:A:649:ARG:NH1	1:A:649:ARG:CG	2.73	0.51
1:B:250:LEU:HG	1:B:312:PRO:HD3	1.92	0.51
1:B:624:ASP:OD1	1:B:624:ASP:N	2.43	0.51
1:A:229:LEU:HD21	1:A:267:VAL:HG22	1.92	0.50
1:A:360:ARG:HG2	1:A:361:GLY:N	2.25	0.50
1:B:5:GLU:O	1:B:37:ARG:HD3	2.11	0.50
1:B:229:LEU:CD2	1:B:267:VAL:HG22	2.41	0.50
1:B:232:ARG:HE	1:B:266:GLU:HB2	1.76	0.50
1:B:523:PHE:CE2	1:B:545:TRP:CB	2.94	0.50
1:A:462:VAL:O	1:A:484:PRO:HA	2.11	0.50
1:B:62:ALA:HB3	1:B:104:VAL:HB	1.93	0.50
1:A:232:ARG:HE	1:A:266:GLU:HB2	1.76	0.50
1:B:167:ILE:HA	1:B:203:ALA:HA	1.93	0.50
1:A:5:GLU:O	1:A:37:ARG:HD3	2.11	0.50
1:B:539:LEU:O	1:B:541:LEU:CD1	2.59	0.50
1:A:250:LEU:HG	1:A:312:PRO:HD3	1.92	0.50
1:A:363:LEU:C	1:A:363:LEU:HD12	2.32	0.50
1:A:167:ILE:HA	1:A:203:ALA:HA	1.93	0.50
1:A:229:LEU:CD2	1:A:267:VAL:HG22	2.41	0.50
1:B:363:LEU:HD12	1:B:363:LEU:C	2.32	0.50
1:B:462:VAL:O	1:B:484:PRO:HA	2.11	0.50
1:B:388:ILE:HD12	1:B:414:LEU:HD21	1.95	0.49
1:B:649:ARG:NH1	1:B:649:ARG:CG	2.73	0.49
1:A:176:LEU:HD12	1:A:198:VAL:CG2	2.42	0.49

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
1:B:176:LEU:HD12	1:B:198:VAL:CG2	2.42	0.49
1:A:62:ALA:HB3	1:A:104:VAL:HB	1.93	0.49
1:A:243:ARG:HG2	1:A:249:TRP:CZ3	2.48	0.49
1:B:243:ARG:HG2	1:B:249:TRP:CZ3	2.48	0.49
1:A:388:ILE:HD12	1:A:414:LEU:HD21	1.94	0.49
1:B:652:ASP:O	1:B:656:ARG:HD2	2.13	0.49
1:A:624:ASP:OD1	1:A:624:ASP:N	2.43	0.49
1:A:504:ARG:HB2	1:A:505:PRO:HD3	1.94	0.49
1:A:652:ASP:O	1:A:656:ARG:HD2	2.13	0.49
1:A:523:PHE:CZ	1:A:545:TRP:HB3	2.48	0.49
1:B:504:ARG:HB2	1:B:505:PRO:HD3	1.94	0.48
1:B:5:GLU:C	1:B:37:ARG:HH11	2.17	0.48
1:B:114:VAL:HA	1:B:150:THR:HA	1.94	0.48
1:B:523:PHE:CZ	1:B:545:TRP:HB3	2.48	0.48
1:A:114:VAL:HA	1:A:150:THR:HA	1.94	0.48
1:A:5:GLU:C	1:A:37:ARG:HH11	2.17	0.48
1:B:328:GLU:HG2	1:B:362:PRO:HG3	1.96	0.48
1:A:227:LEU:O	1:A:250:LEU:HA	2.14	0.48
1:A:230:ARG:HB3	1:A:268:LEU:HD21	1.96	0.48
1:B:175:ARG:CB	1:B:213:LEU:HB2	2.35	0.48
1:B:37:ARG:O	1:B:37:ARG:HG2	2.14	0.48
1:B:182:CYS:HG	1:B:209:PHE:HE1	1.45	0.47
1:A:328:GLU:HG2	1:A:362:PRO:HG3	1.96	0.47
1:B:549:VAL:HG22	1:B:561:LEU:HD21	1.96	0.47
1:A:560:LYS:HA	1:A:563:SER:OG	2.15	0.47
1:B:560:LYS:HA	1:B:563:SER:OG	2.15	0.47
1:A:549:VAL:HG22	1:A:561:LEU:HD21	1.96	0.47
1:A:15:TYR:HE2	1:A:50:MET:HA	1.80	0.47
1:A:529:ILE:HD12	1:A:583:VAL:HG21	1.96	0.47
1:B:303:LYS:HZ1	1:B:323:VAL:CG1	2.26	0.47
1:A:539:LEU:O	1:A:541:LEU:HD12	2.15	0.47
1:A:710:GLU:O	1:A:714:MET:HG2	2.15	0.47
1:B:227:LEU:O	1:B:250:LEU:HA	2.14	0.47
1:A:28:VAL:HG21	1:A:98:PRO:HB2	1.97	0.46
1:B:15:TYR:O	1:B:47:PRO:HA	2.16	0.46
1:B:230:ARG:HB3	1:B:268:LEU:HD21	1.96	0.46
1:B:529:ILE:HD12	1:B:583:VAL:HG21	1.97	0.46
1:B:710:GLU:O	1:B:714:MET:HG2	2.15	0.46
1:B:342:GLU:OE2	1:B:344:GLU:HB2	2.15	0.46
1:B:537:LEU:HD11	1:B:591:PHE:HE2	1.81	0.46
1:B:88:LEU:HD11	1:B:106:GLU:HG2	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:342:GLU:OE2	1:A:344:GLU:HB2	2.15	0.46
1:B:539:LEU:O	1:B:541:LEU:HD12	2.15	0.46
1:A:37:ARG:O	1:A:37:ARG:HG2	2.15	0.46
1:A:537:LEU:HD11	1:A:591:PHE:HE2	1.81	0.46
1:A:714:MET:SD	1:A:714:MET:N	2.89	0.46
1:B:303:LYS:NZ	1:B:323:VAL:HG13	2.30	0.46
1:B:333:LEU:HD22	1:B:377:ARG:CZ	2.45	0.46
1:A:729:ARG:CZ	1:A:729:ARG:HB3	2.45	0.46
1:A:759:LEU:HA	1:A:762:VAL:HG22	1.98	0.46
1:B:15:TYR:HE2	1:B:50:MET:HA	1.80	0.46
1:B:28:VAL:HG21	1:B:98:PRO:HB2	1.97	0.46
1:A:303:LYS:HZ3	1:A:323:VAL:HG13	1.81	0.46
1:A:341:GLU:HA	1:A:350:SER:HA	1.97	0.46
1:B:173:ALA:HB2	1:B:199:THR:HG22	1.98	0.45
1:B:411:ASP:OD1	1:B:411:ASP:N	2.49	0.45
1:B:729:ARG:CZ	1:B:729:ARG:HB3	2.45	0.45
1:A:15:TYR:O	1:A:47:PRO:HA	2.16	0.45
1:A:146:GLU:OE1	1:A:205:LEU:HD22	2.16	0.45
1:A:760:GLN:O	1:A:764:LYS:HG3	2.16	0.45
1:B:341:GLU:HA	1:B:350:SER:HA	1.97	0.45
1:A:15:TYR:HD2	1:A:50:MET:CG	2.30	0.45
1:A:806:THR:HA	1:A:809:ASP:OD2	2.17	0.45
1:A:88:LEU:HD11	1:A:106:GLU:HG2	1.98	0.45
1:B:115:VAL:CG2	1:B:121:LEU:HG	2.47	0.45
1:B:357:TRP:HH2	1:B:371:VAL:HG22	1.82	0.45
1:B:806:THR:HA	1:B:809:ASP:OD2	2.17	0.45
1:A:115:VAL:CG2	1:A:121:LEU:HG	2.47	0.45
1:B:633:LEU:CD2	1:B:635:VAL:HG23	2.47	0.45
1:A:303:LYS:NZ	1:A:323:VAL:HG13	2.30	0.45
1:B:714:MET:SD	1:B:714:MET:N	2.89	0.45
1:B:759:LEU:HA	1:B:762:VAL:HG22	1.98	0.45
1:A:333:LEU:HD22	1:A:377:ARG:CZ	2.45	0.44
1:A:600:ARG:HD2	1:A:604:PHE:HD2	1.82	0.44
1:A:633:LEU:CD2	1:A:635:VAL:HG23	2.47	0.44
1:B:600:ARG:HD2	1:B:604:PHE:HD2	1.82	0.44
1:A:10:ILE:HG23	1:A:47:PRO:HB3	1.99	0.44
1:A:52:THR:HB	1:A:96:PRO:HG3	1.99	0.44
1:A:173:ALA:HB2	1:A:199:THR:HG22	1.98	0.44
1:B:52:THR:HB	1:B:96:PRO:HG3	1.99	0.44
1:B:760:GLN:O	1:B:764:LYS:HG3	2.16	0.44
1:A:311:GLN:HB3	1:A:312:PRO:HD2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:228:HIS:NE2	1:A:312:PRO:HB3	2.33	0.44
1:A:357:TRP:HH2	1:A:371:VAL:HG22	1.82	0.44
1:A:698:GLU:HA	1:A:701:LYS:HZ3	1.82	0.44
1:B:15:TYR:HD2	1:B:50:MET:CG	2.30	0.44
1:B:146:GLU:OE1	1:B:205:LEU:HD22	2.16	0.44
1:B:228:HIS:NE2	1:B:312:PRO:HB3	2.33	0.44
1:B:64:PRO:HB2	1:B:84:ARG:NH2	2.33	0.44
1:B:333:LEU:O	1:B:374:VAL:HG22	2.18	0.44
1:B:473:TYR:HE1	1:B:494:GLN:HB2	1.83	0.44
1:B:654:LEU:HD13	1:B:654:LEU:HA	1.83	0.44
1:A:145:PHE:CE2	1:A:151:TYR:HB2	2.52	0.44
1:A:357:TRP:CH2	1:A:371:VAL:HG22	2.52	0.44
1:A:473:TYR:HE1	1:A:494:GLN:HB2	1.83	0.44
1:B:14:HIS:HE1	1:B:49:ARG:HH21	1.66	0.44
1:B:129:PHE:CD2	1:B:156:GLU:HG3	2.53	0.44
1:B:523:PHE:CE2	1:B:545:TRP:HB3	2.52	0.44
1:B:793:LYS:HE3	1:B:793:LYS:HB3	1.87	0.44
1:B:145:PHE:CE2	1:B:151:TYR:HB2	2.52	0.44
1:A:6:PHE:CZ	1:B:9:ARG:NH2	2.86	0.44
1:A:14:HIS:HE1	1:A:49:ARG:HH21	1.66	0.44
1:A:129:PHE:CD2	1:A:156:GLU:HG3	2.53	0.44
1:A:782:SER:HA	1:A:785:GLN:NE2	2.33	0.44
1:A:144:LEU:HD23	1:A:144:LEU:HA	1.79	0.43
1:A:237:ASP:OD1	1:A:241:VAL:N	2.51	0.43
1:B:514:LEU:HD23	1:B:514:LEU:HA	1.87	0.43
1:B:553:LYS:HE3	1:B:553:LYS:HB2	1.75	0.43
1:A:120:ALA:HA	1:A:146:GLU:HA	2.00	0.43
1:A:603:VAL:HG21	1:A:638:VAL:HG21	1.99	0.43
1:B:28:VAL:HG13	1:B:28:VAL:O	2.18	0.43
1:B:115:VAL:HG12	1:B:116:LEU:O	2.18	0.43
1:B:357:TRP:CH2	1:B:371:VAL:HG22	2.52	0.43
1:A:333:LEU:O	1:A:374:VAL:HG22	2.18	0.43
1:A:782:SER:O	1:A:785:GLN:HG2	2.18	0.43
1:B:120:ALA:HA	1:B:146:GLU:HA	2.00	0.43
1:B:311:GLN:HB3	1:B:312:PRO:HD2	2.00	0.43
1:A:523:PHE:CE2	1:A:545:TRP:HB3	2.53	0.43
1:B:10:ILE:HG23	1:B:47:PRO:HB3	1.99	0.43
1:B:387:GLY:HA3	1:B:402:ILE:HA	2.01	0.43
1:A:115:VAL:HG12	1:A:116:LEU:O	2.18	0.43
1:A:333:LEU:HD13	1:A:377:ARG:NH2	2.34	0.43
1:A:662:ILE:O	1:A:666:THR:HG23	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:539:LEU:C	1:B:541:LEU:HD12	2.39	0.43
1:A:64:PRO:HB2	1:A:84:ARG:NH2	2.33	0.43
1:A:123:LEU:HD23	1:A:159:VAL:HG23	2.01	0.43
1:A:471:TYR:OH	1:A:476:LYS:HG3	2.19	0.43
1:B:73:VAL:HG11	1:B:100:TYR:CD1	2.54	0.43
1:B:116:LEU:HB3	1:B:117:PRO:HD2	2.01	0.43
1:B:453:ASN:HB3	1:B:456:ARG:HG2	2.01	0.43
1:A:114:VAL:HG13	1:A:114:VAL:O	2.19	0.43
1:A:116:LEU:HB3	1:A:117:PRO:HD2	2.01	0.43
1:A:73:VAL:HG11	1:A:100:TYR:CE1	2.53	0.43
1:A:556:GLN:O	1:A:560:LYS:HG3	2.19	0.43
1:A:587:THR:OG1	1:A:588:PHE:N	2.52	0.43
1:B:237:ASP:OD1	1:B:241:VAL:N	2.51	0.43
1:B:556:GLN:O	1:B:560:LYS:HG3	2.19	0.43
1:B:662:ILE:O	1:B:666:THR:HG23	2.18	0.43
1:A:28:VAL:HG13	1:A:28:VAL:O	2.18	0.43
1:A:680:LEU:HD23	1:A:680:LEU:HA	1.73	0.42
1:B:471:TYR:OH	1:B:476:LYS:HG3	2.19	0.42
1:B:506:LYS:HZ2	1:B:523:PHE:HB2	1.82	0.42
1:B:782:SER:O	1:B:785:GLN:HG2	2.19	0.42
1:A:88:LEU:H	1:A:155:LYS:HD2	1.84	0.42
1:B:603:VAL:HG21	1:B:638:VAL:HG21	1.99	0.42
1:A:9:ARG:NH2	1:B:6:PHE:CZ	2.87	0.42
1:A:14:HIS:HB3	1:A:47:PRO:HB3	2.01	0.42
1:A:387:GLY:HA3	1:A:402:ILE:HA	2.01	0.42
1:A:539:LEU:C	1:A:541:LEU:HD12	2.39	0.42
1:B:73:VAL:HG11	1:B:100:TYR:CE1	2.53	0.42
1:B:589:ASP:OD1	1:B:589:ASP:N	2.53	0.42
1:B:680:LEU:HD23	1:B:680:LEU:HA	1.73	0.42
1:B:782:SER:HA	1:B:785:GLN:NE2	2.33	0.42
1:A:285:LEU:N	1:A:315:GLN:O	2.52	0.42
1:B:344:GLU:HB3	1:B:349:VAL:HG23	2.01	0.42
1:A:61:VAL:HG22	1:A:105:LEU:HD12	2.01	0.42
1:A:73:VAL:HG11	1:A:100:TYR:CD1	2.54	0.42
1:A:627:VAL:HG22	1:A:634:VAL:CG1	2.46	0.42
1:B:114:VAL:O	1:B:114:VAL:HG13	2.19	0.42
1:B:333:LEU:HD13	1:B:377:ARG:NH2	2.34	0.42
1:B:587:THR:OG1	1:B:588:PHE:N	2.52	0.42
1:A:310:LEU:HD23	1:A:310:LEU:HA	1.86	0.42
1:B:344:GLU:HB3	1:B:349:VAL:CG2	2.50	0.42
1:A:18:VAL:HG11	1:A:35:TYR:HE2	1.83	0.42

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
1:A:63:ASN:O	1:A:103:GLU:HG2	2.20	0.42
1:A:124:LYS:HB3	1:A:124:LYS:HE2	1.84	0.42
1:A:344:GLU:HB3	1:A:349:VAL:HG23	2.01	0.42
1:B:123:LEU:HD23	1:B:159:VAL:HG23	2.01	0.42
1:A:377:ARG:HB3	1:A:407:MET:SD	2.60	0.42
1:A:539:LEU:CB	1:A:541:LEU:HD11	2.31	0.42
1:B:377:ARG:HB3	1:B:407:MET:SD	2.60	0.42
1:B:61:VAL:HG22	1:B:105:LEU:HD12	2.01	0.41
1:B:627:VAL:HG22	1:B:634:VAL:CG1	2.45	0.41
1:A:453:ASN:HB3	1:A:456:ARG:HG2	2.01	0.41
1:B:539:LEU:CB	1:B:541:LEU:HD11	2.31	0.41
1:A:589:ASP:OD1	1:A:589:ASP:N	2.52	0.41
1:B:14:HIS:HB3	1:B:47:PRO:HB3	2.01	0.41
1:B:303:LYS:HZ3	1:B:323:VAL:CG1	2.32	0.41
1:B:18:VAL:HG11	1:B:35:TYR:HE2	1.83	0.41
1:A:283:VAL:HG11	1:A:299:LYS:HD3	2.01	0.41
1:A:344:GLU:HB3	1:A:349:VAL:CG2	2.50	0.41
1:B:63:ASN:O	1:B:103:GLU:HG2	2.20	0.41
1:A:175:ARG:HA	1:A:197:LEU:HD23	2.03	0.41
1:A:176:LEU:HD11	1:A:204:TYR:HE2	1.85	0.41
1:A:330:GLN:O	1:A:360:ARG:HG3	2.20	0.41
1:B:408:LEU:HD11	1:B:414:LEU:HG	2.03	0.41
1:A:506:LYS:HZ1	1:A:523:PHE:HB2	1.83	0.41
1:B:330:GLN:O	1:B:360:ARG:HG3	2.21	0.41
1:A:229:LEU:HD12	1:A:249:TRP:HE1	1.86	0.41
1:A:408:LEU:HD11	1:A:414:LEU:HG	2.03	0.41
1:B:65:VAL:HG13	1:B:103:GLU:OE2	2.21	0.41
1:B:283:VAL:HG11	1:B:299:LYS:HD3	2.01	0.41
1:B:285:LEU:N	1:B:315:GLN:O	2.52	0.41
1:A:9:ARG:HG2	1:A:34:THR:HB	2.03	0.41
1:B:88:LEU:H	1:B:155:LYS:HD2	1.84	0.41
1:A:154:ARG:NE	1:A:156:GLU:OE2	2.48	0.40
1:A:411:ASP:OD1	1:A:411:ASP:N	2.49	0.40
1:A:25:VAL:HG12	1:A:80:GLN:HG2	2.03	0.40
1:B:9:ARG:HG2	1:B:34:THR:HB	2.02	0.40
1:A:53:VAL:HB	1:A:93:ALA:HA	2.03	0.40
1:A:121:LEU:O	1:A:144:LEU:HA	2.22	0.40
1:A:384:GLU:O	1:A:385:ASN:OD1	2.39	0.40
1:B:18:VAL:HA	1:B:43:VAL:HA	2.04	0.40
1:B:75:PHE:HA	1:B:81:VAL:HA	2.04	0.40
1:B:794:LYS:HE2	1:B:794:LYS:HB3	1.89	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:65:VAL:HG13	1:A:103:GLU:OE2	2.21	0.40
1:A:473:TYR:CE1	1:A:494:GLN:HB2	2.57	0.40
1:B:217:ASP:OD1	1:B:217:ASP:N	2.54	0.40
1:B:395:THR:HG21	1:B:397:LYS:HE2	2.04	0.40
1:B:591:PHE:O	1:B:595:SER:N	2.55	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	769/893 (86%)	712 (93%)	57 (7%)	0	100	100
1	B	769/893 (86%)	712 (93%)	57 (7%)	0	100	100
All	All	1538/1786 (86%)	1424 (93%)	114 (7%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	663/755 (88%)	662 (100%)	1 (0%)	92	95
1	B	663/755 (88%)	662 (100%)	1 (0%)	92	95
All	All	1326/1510 (88%)	1324 (100%)	2 (0%)	91	95

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	523	PHE
1	B	523	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	254	GLN
1	B	254	GLN

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 ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

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.

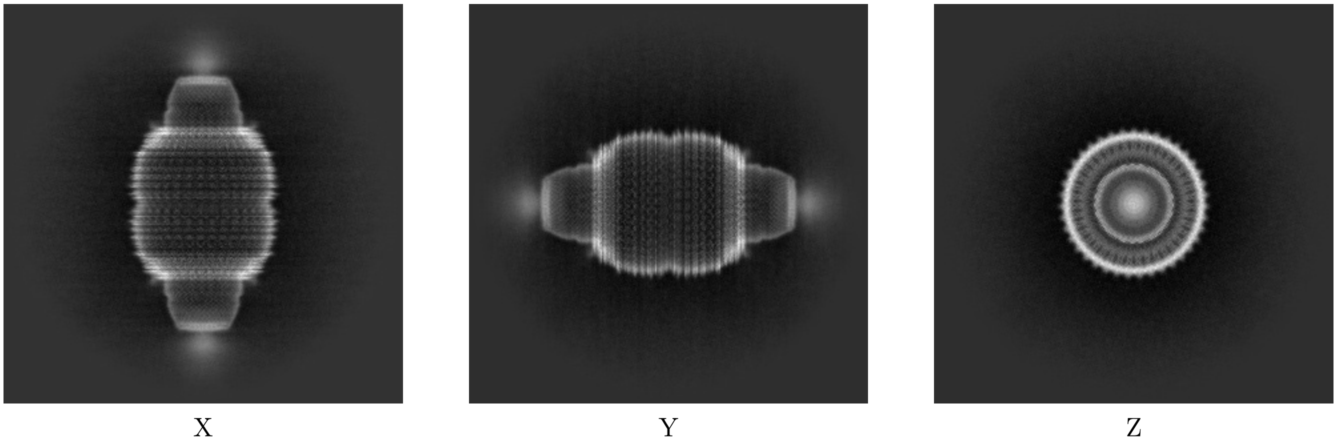
6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-44953. These allow visual inspection of the internal detail of the map and identification of artifacts.

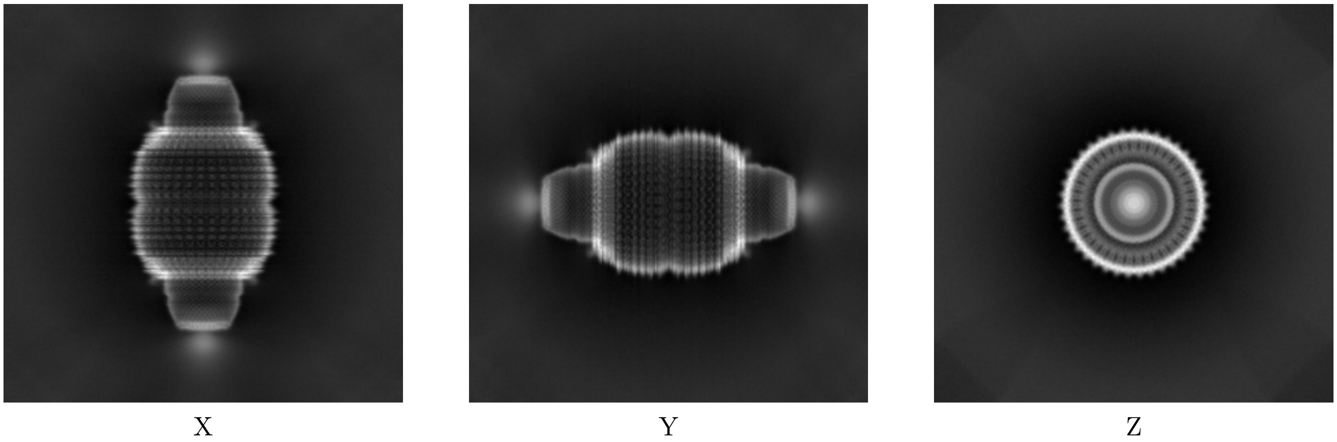
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections (i)

6.1.1 Primary map


X Y Z

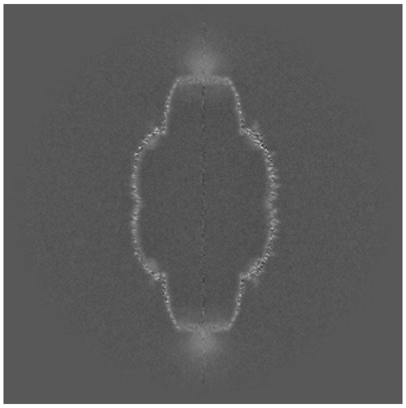
6.1.2 Raw map

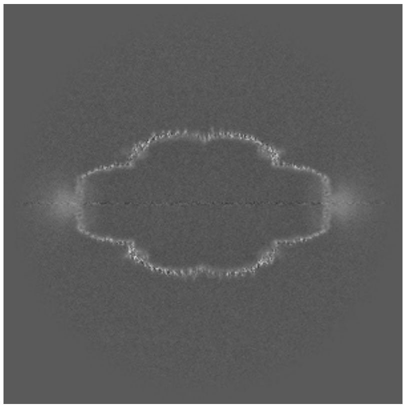

X Y Z

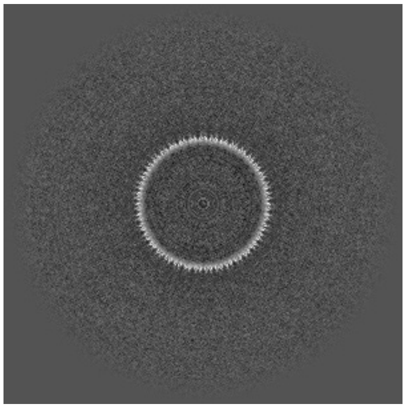
The images above show the map projected in three orthogonal directions.

6.2 Central slices

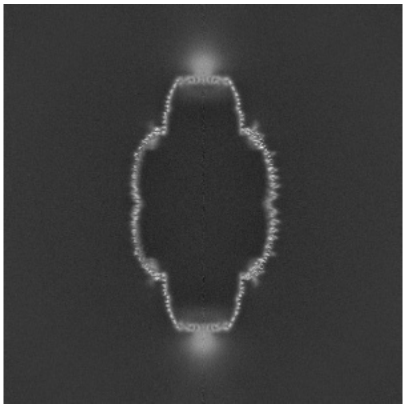
6.2.1 Primary map

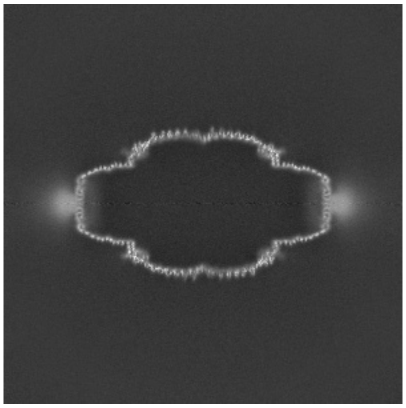

X Index: 400

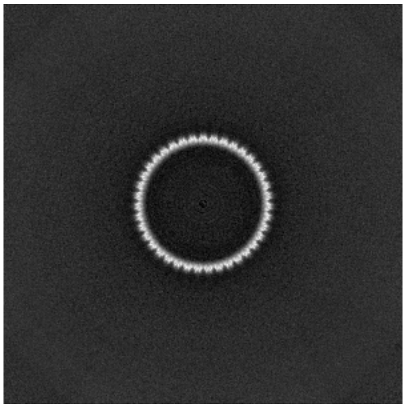

Y Index: 400


Z Index: 400

6.2.2 Raw map


X Index: 400

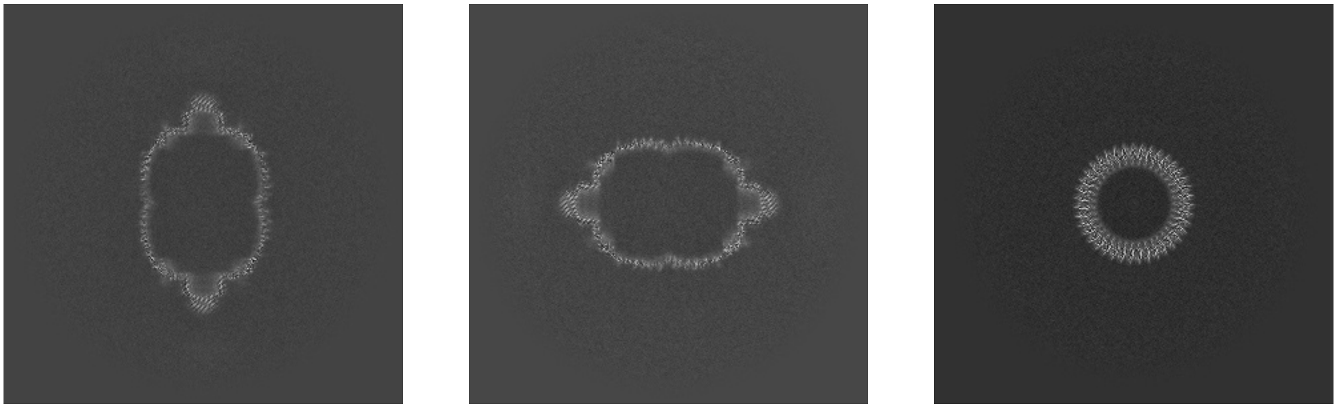

Y Index: 400


Z Index: 400

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

6.3 Largest variance slices ⓘ

6.3.1 Primary map

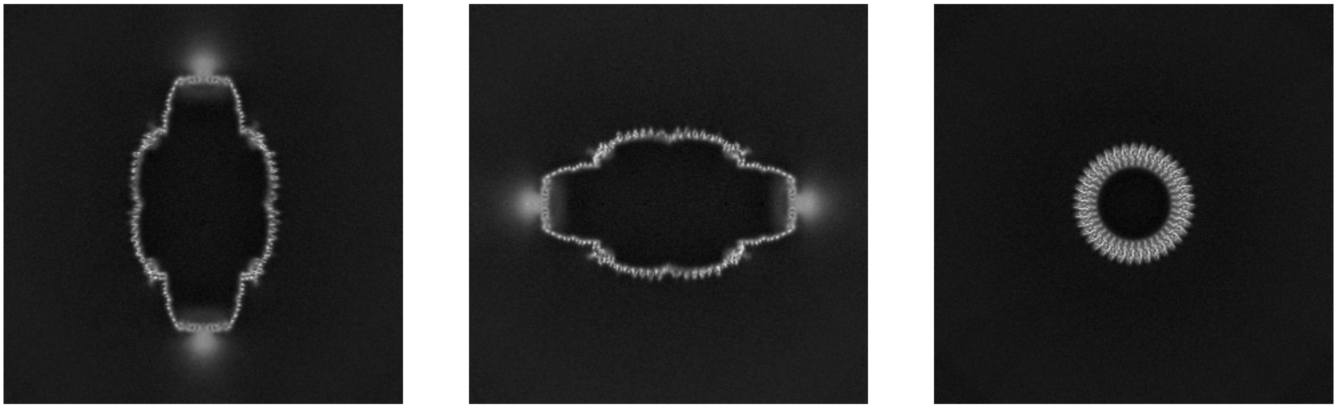


X Index: 470

Y Index: 330

Z Index: 539

6.3.2 Raw map



X Index: 404

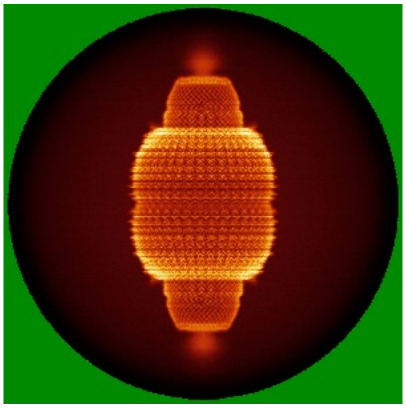
Y Index: 398

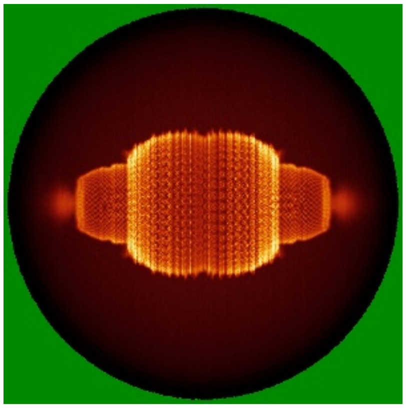
Z Index: 539

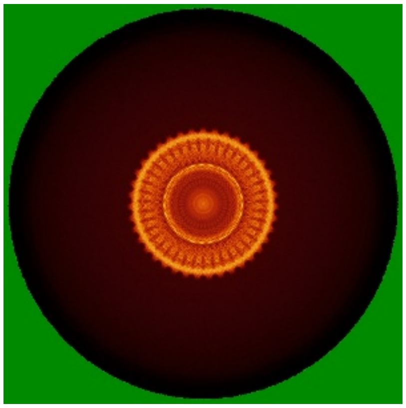
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color)

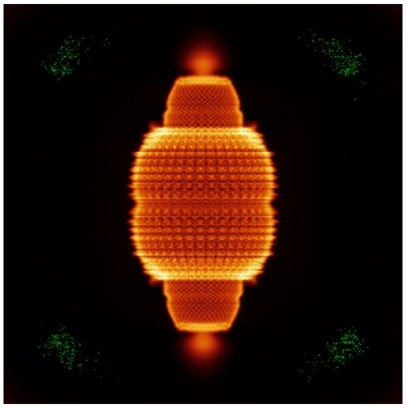
6.4.1 Primary map

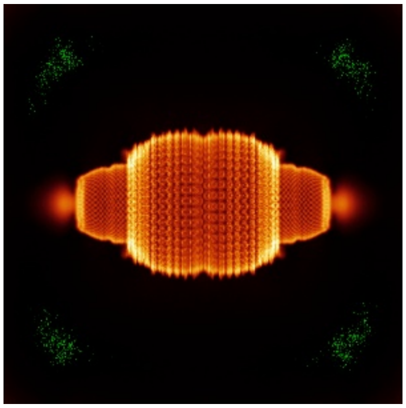

X

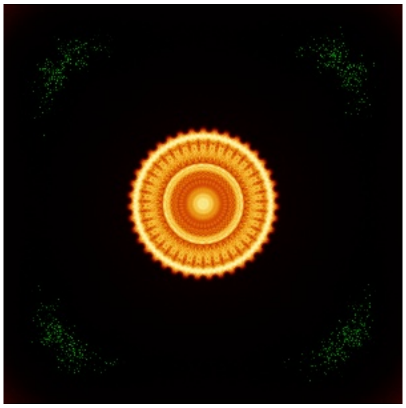

Y


Z

6.4.2 Raw map


X


Y


Z

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

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.3. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

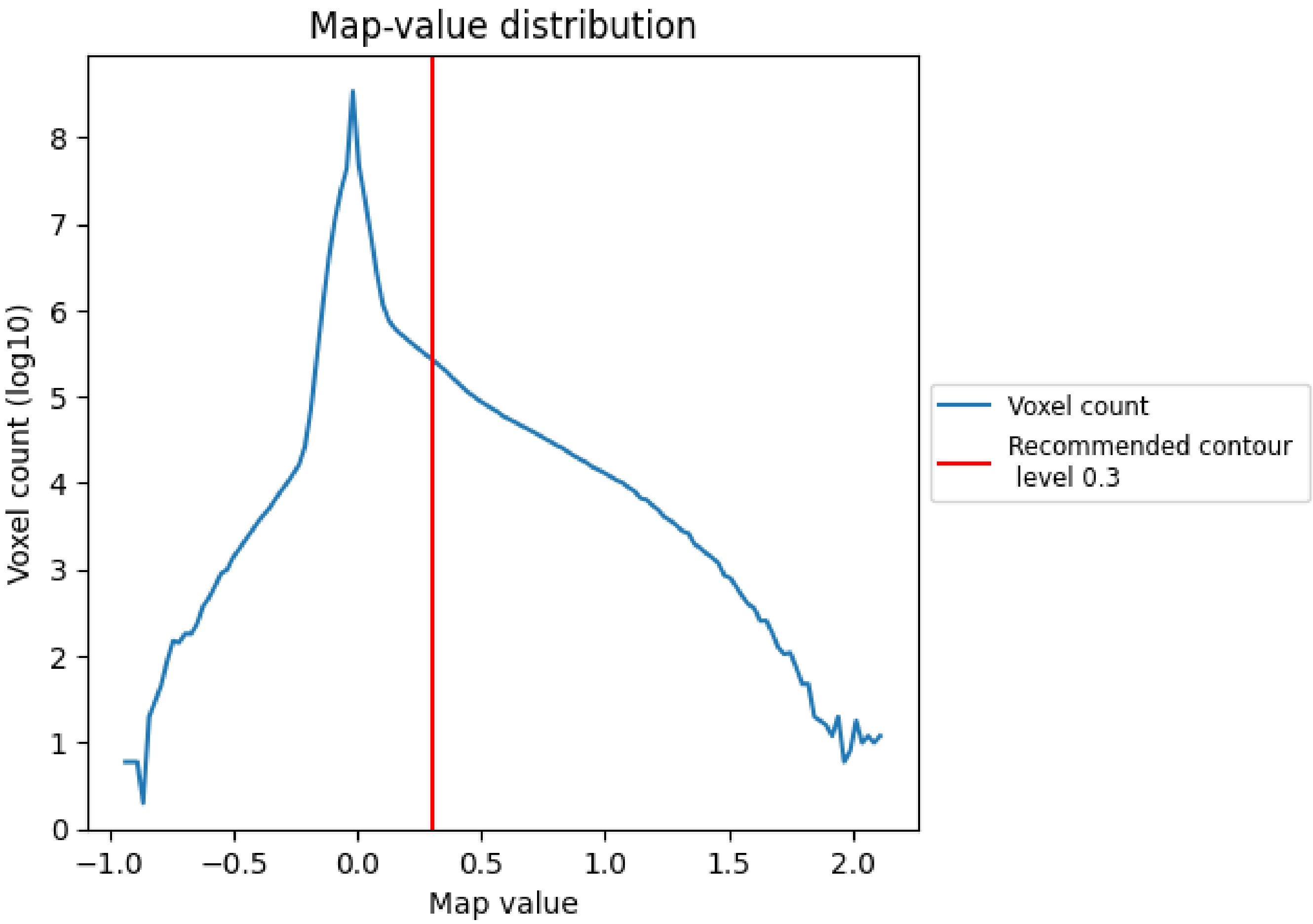
6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

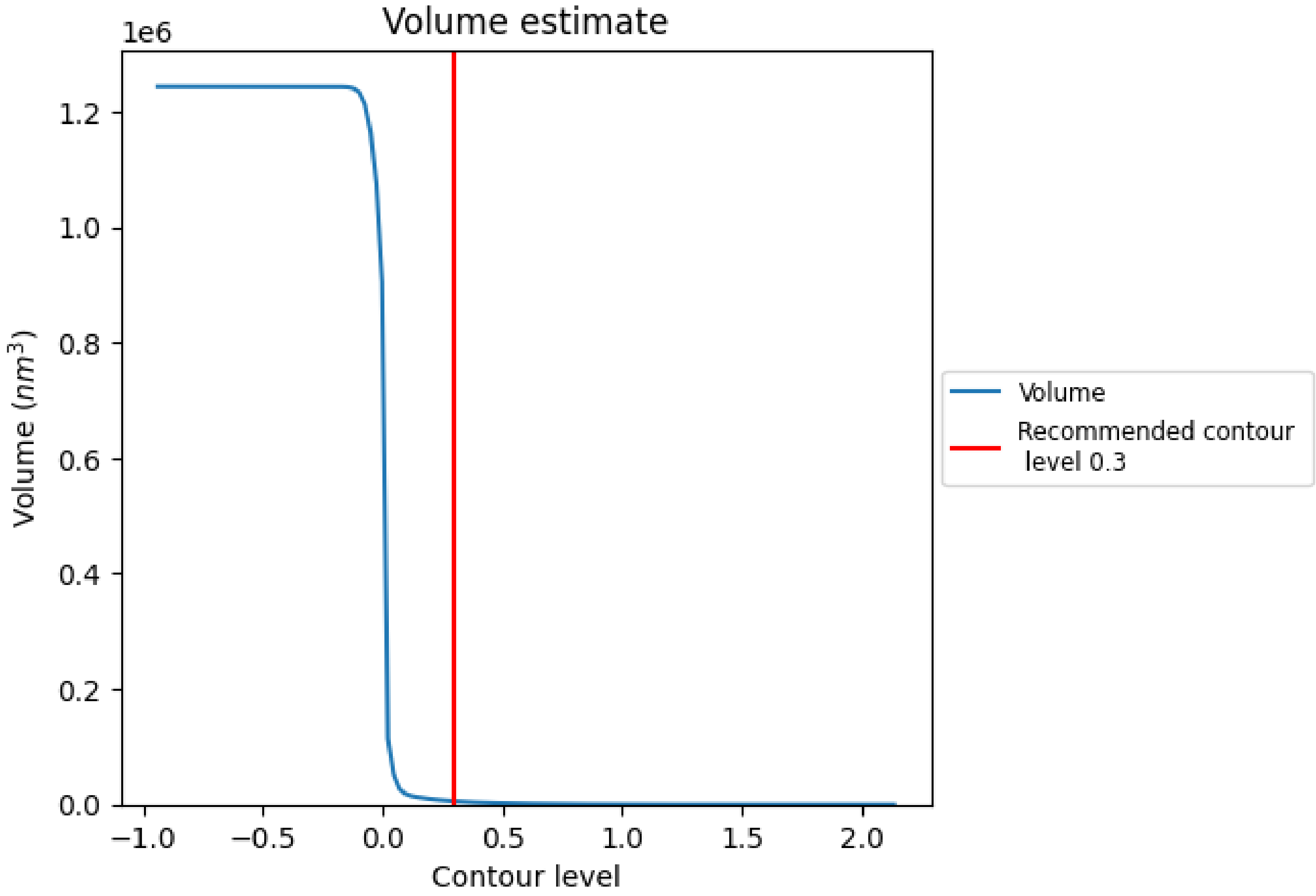
This section contains the results of statistical analysis of the map.

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.

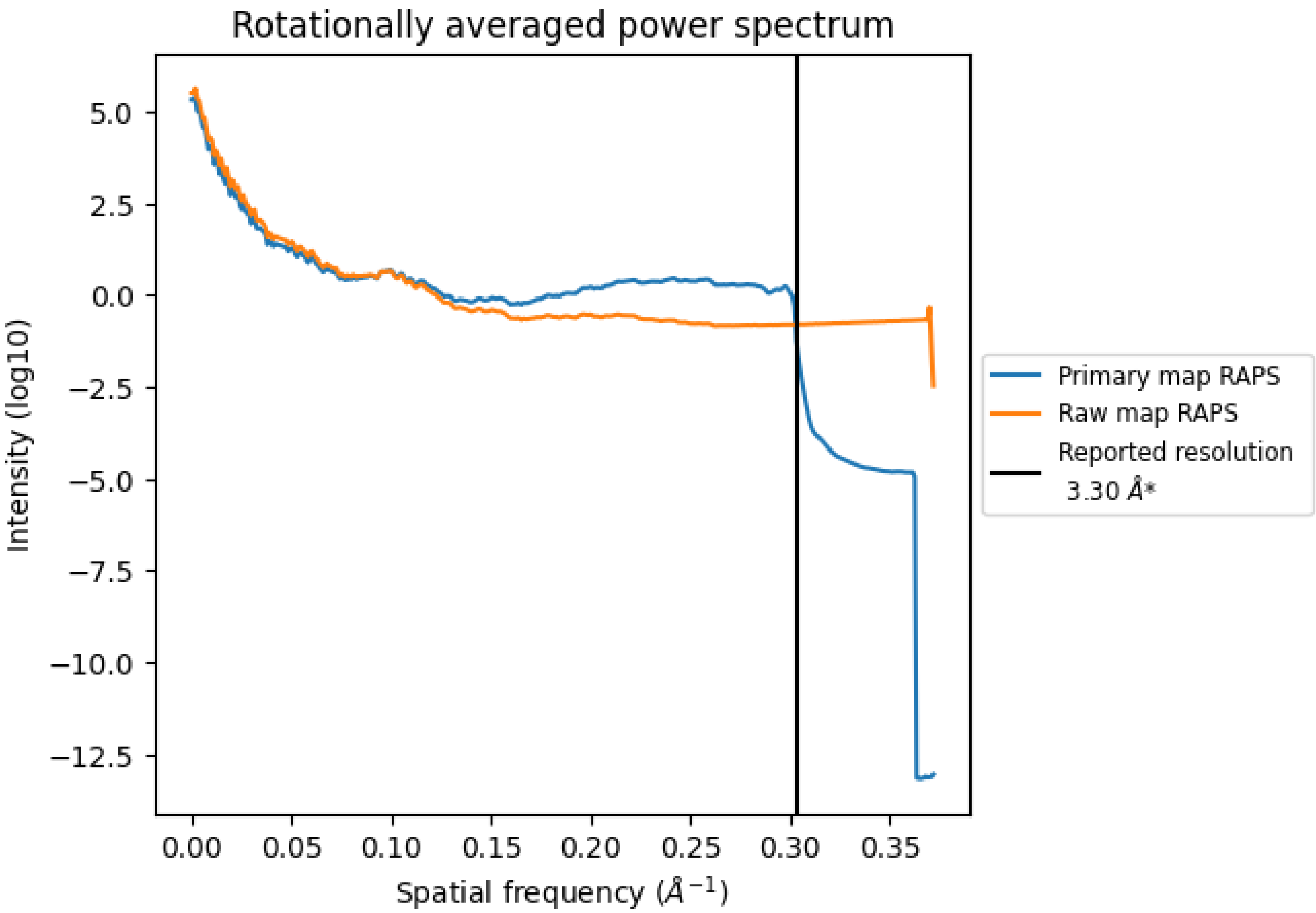
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 5785 nm^3; this corresponds to an approximate mass of 5225 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 ⓘ

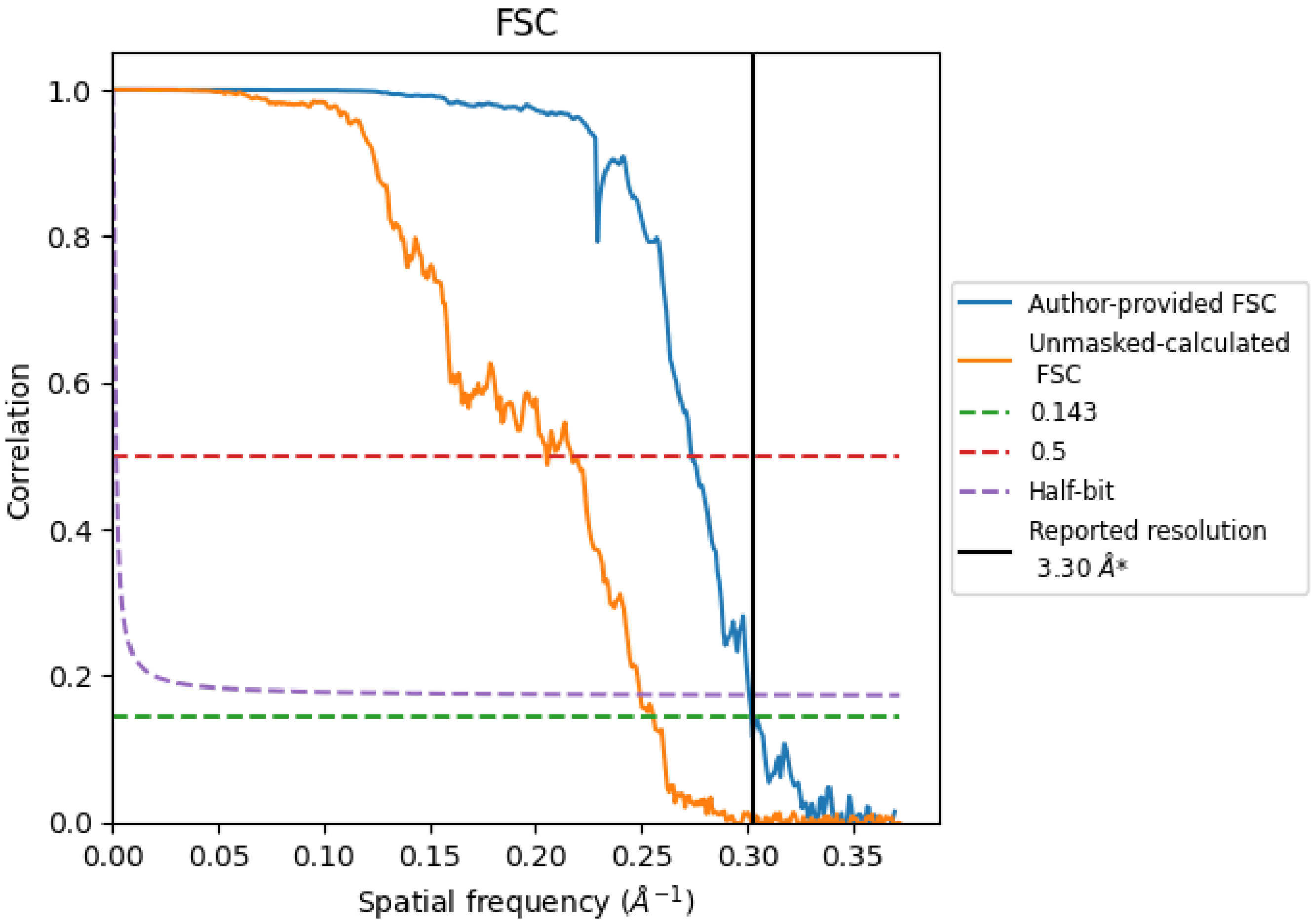


*Reported resolution corresponds to spatial frequency of 0.303 $Å^{-1}$

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 0.303 Å^{-1}

8.2 Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	3.31	3.65	3.32
Unmasked-calculated*	3.91	4.88	4.01

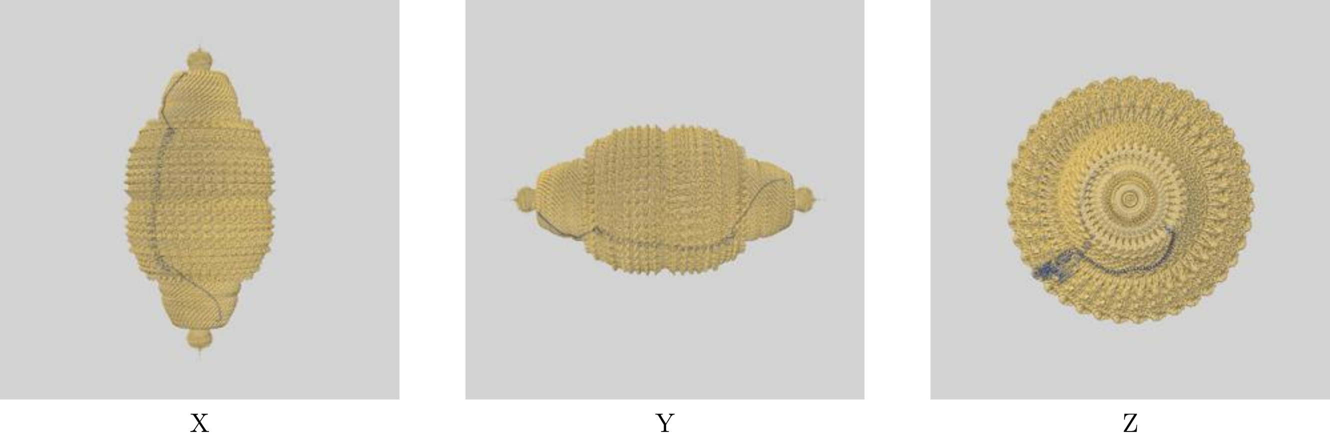
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.91 differs from the reported value 3.3 by more than 10 %

9 Map-model fit ⓘ

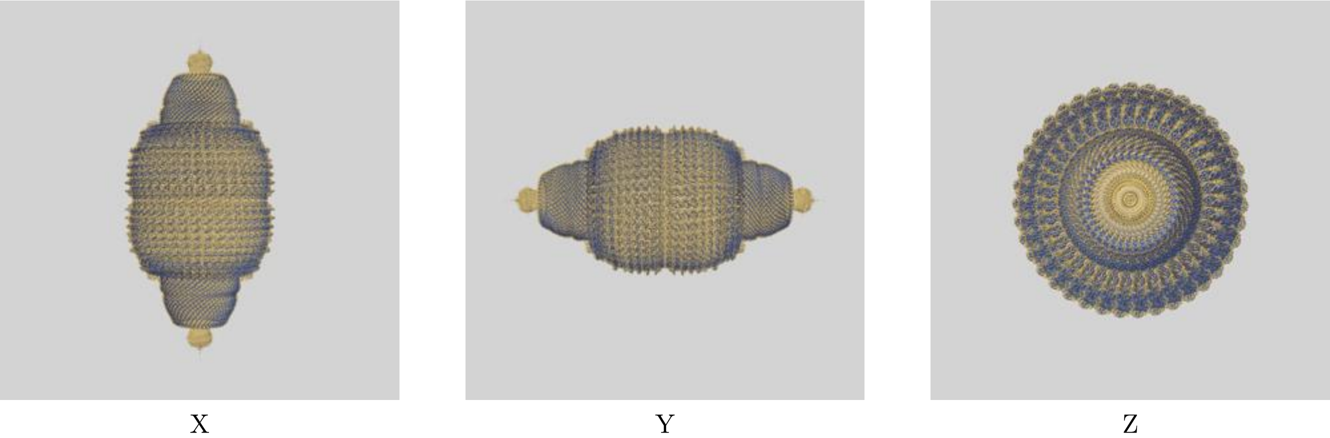
This section contains information regarding the fit between EMDB map EMD-44953 and PDB model 9BW5. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlays

9.1.1 Map-model overlay ⓘ

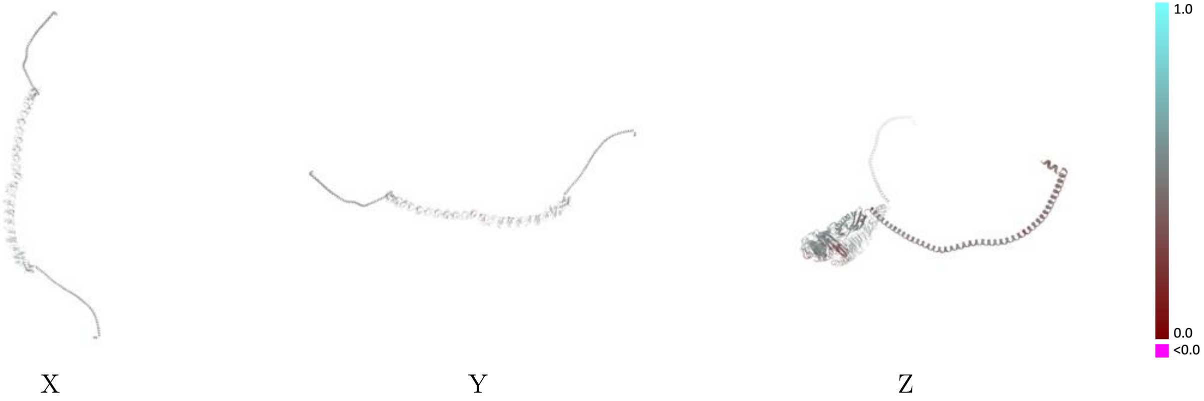

X Y Z

9.1.2 Map-model assembly overlay ⓘ


X Y Z

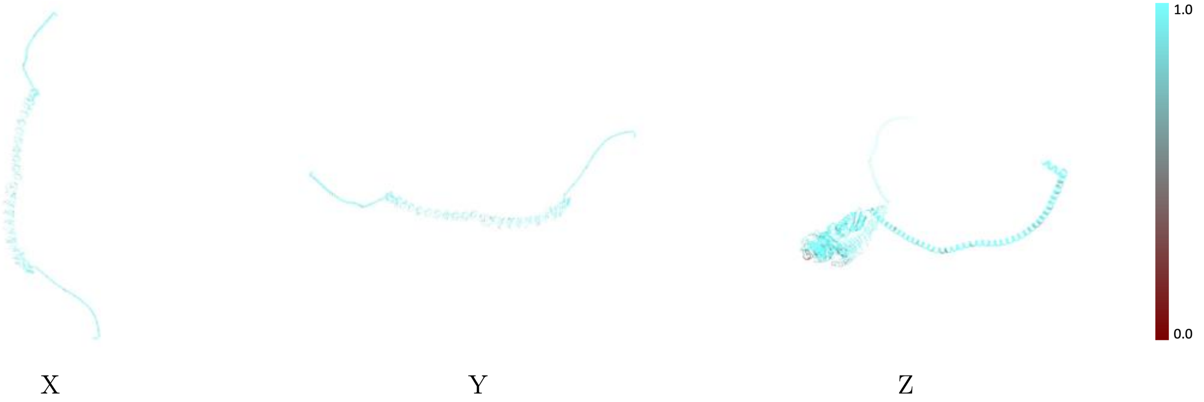
The images above show the 3D surface view of the map at the recommended contour level 0.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ



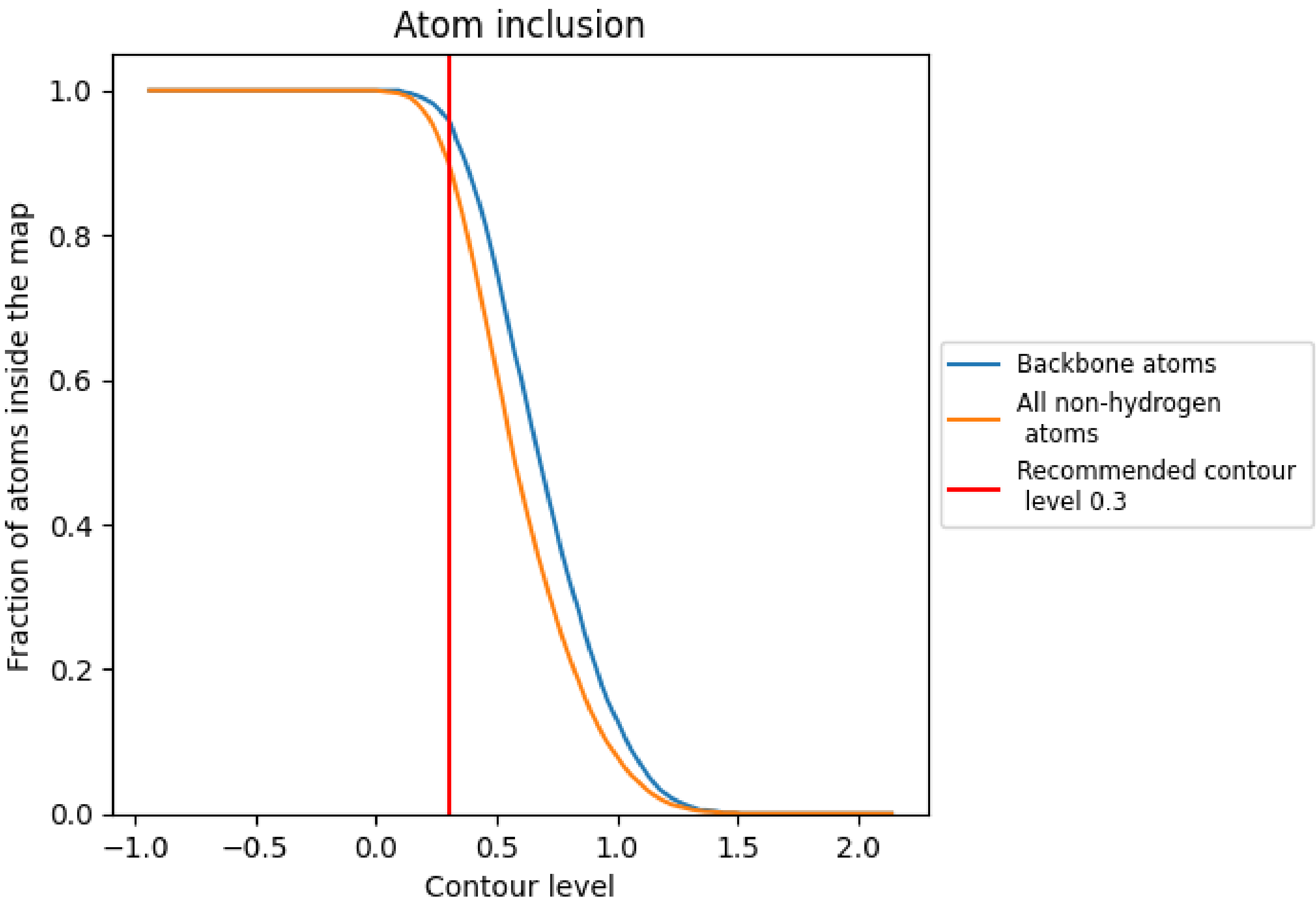
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model ⓘ



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.3).

9.4 Atom inclusion ⓘ



At the recommended contour level, 96% of all backbone atoms, 90% 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 (0.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	▬ 0.9000	▬ 0.4600
A	▬ 0.9010	▬ 0.4600
B	▬ 0.8980	▬ 0.4590