wwPDB EM Validation Summary Report

Mar 8, 2026 – 10:33 AM UTC

PDB ID	:	9DK0 / pdb_00009dk0
EMDB ID	:	EMD-46942
Title	:	CryoEM structures of yeast cytoplasmic dynein in the presence of ATP and Lis1.
Authors	:	Kendrick, A.A.; Leschziner, A.E.
Deposited on	:	2024-09-07
Resolution	:	3.70 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ 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:

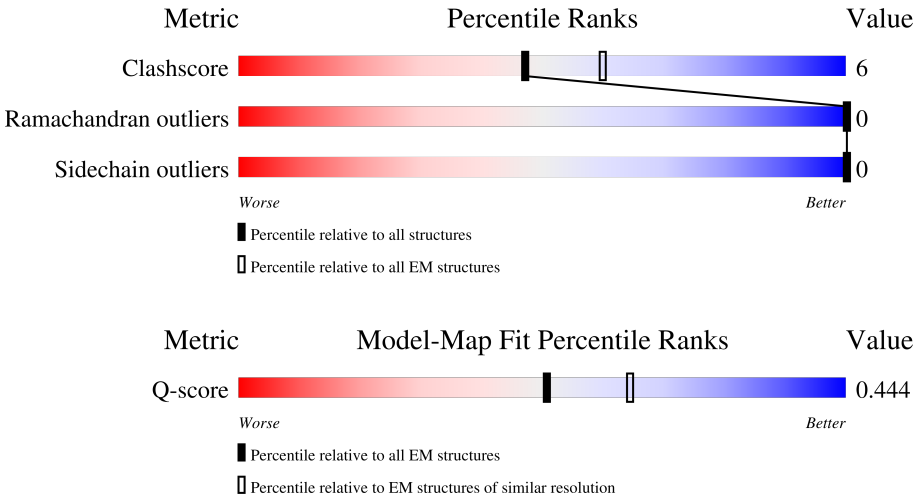
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data 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)	:	2.49

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 3.70 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	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	11569 (3.20 - 4.20)

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 <=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	2875	7% 70% 12% 18%
2	C	495	5% 56% 14% 30%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 21050 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 Dynein heavy chain, cytoplasmic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2344	18250	11717	3067	3387	79	0	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1220	GLY	ASN	conflict	UNP P36022
A	1575	PHE	LEU	conflict	UNP P36022
A	1578	SER	PHE	conflict	UNP P36022
A	1668	GLU	GLN	conflict	UNP P36022
A	1777	VAL	ILE	conflict	UNP P36022
A	1984	VAL	ILE	conflict	UNP P36022
A	2936	VAL	ILE	conflict	UNP P36022
A	3266	GLN	ARG	conflict	UNP P36022
A	3343	GLY	ALA	conflict	UNP P36022
A	3444	VAL	ILE	conflict	UNP P36022
A	3556	ARG	LYS	conflict	UNP P36022
A	3742	ASP	ASN	conflict	UNP P36022
A	3895	VAL	PHE	conflict	UNP P36022
A	4072	ASP	ASN	conflict	UNP P36022

- Molecule 2 is a protein called Nuclear distribution protein PAC1.

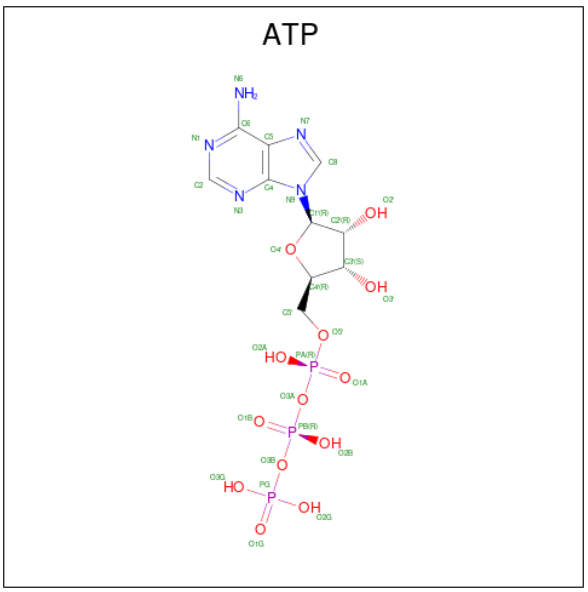
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	346	2687	1722	473	477	15	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	0	GLY	-	expression tag	UNP P39946

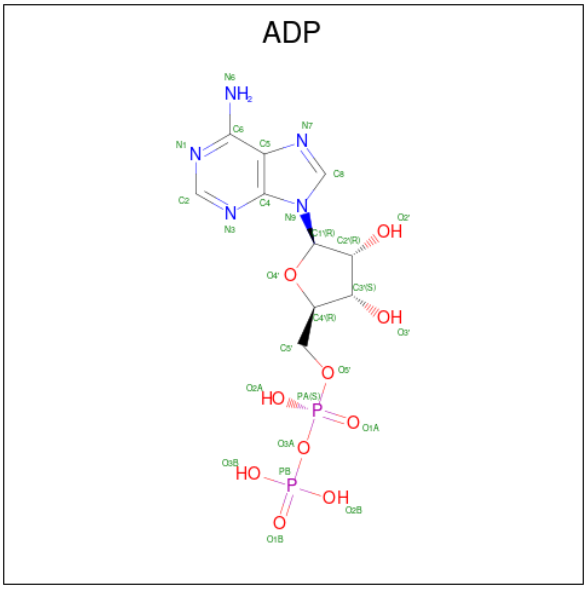
- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$)

(labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 4 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			27	10	5	10	2	

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Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
4	A	1	Total	C	N	O	P	0
			27	10	5	10	2	

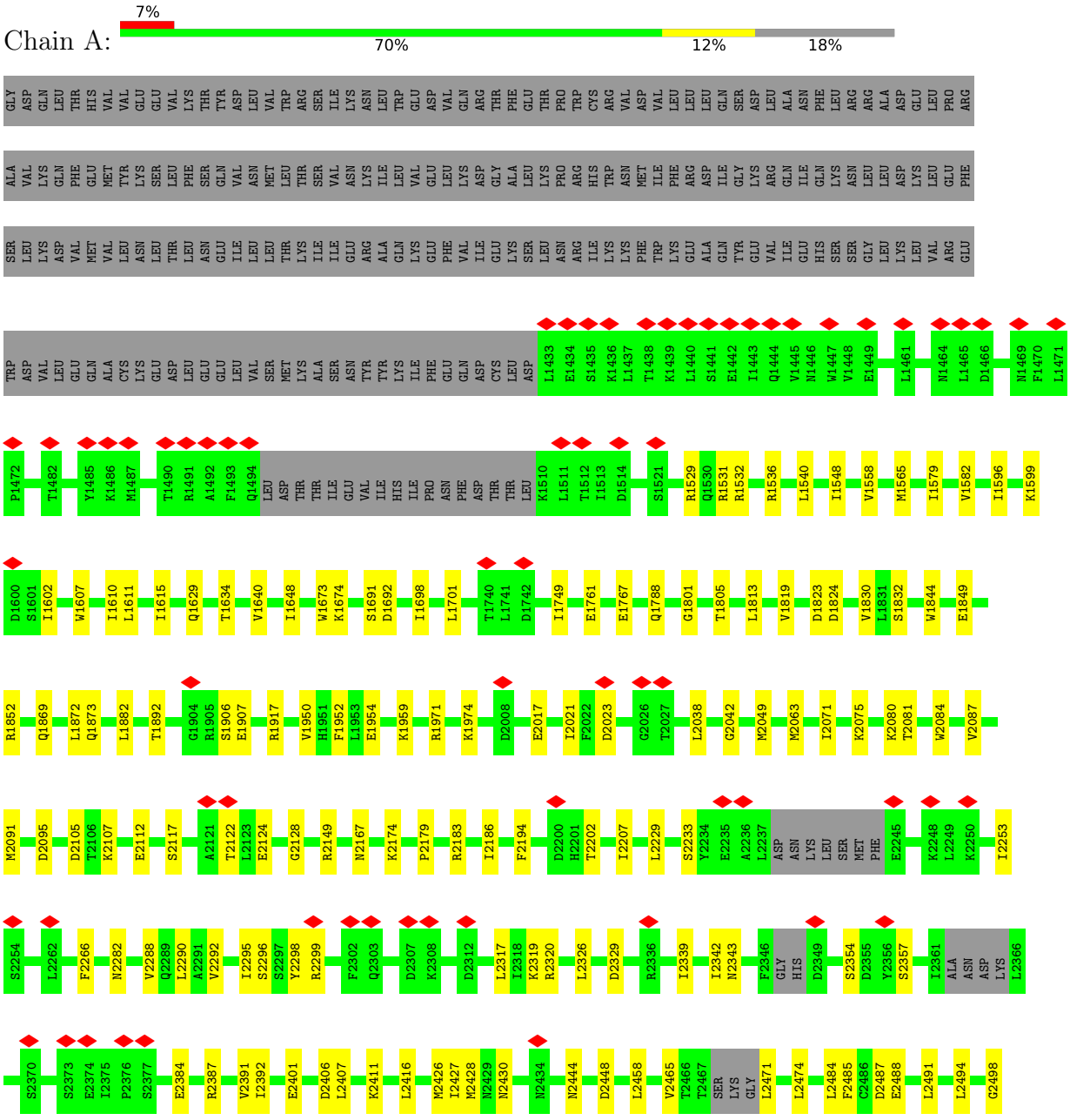
- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

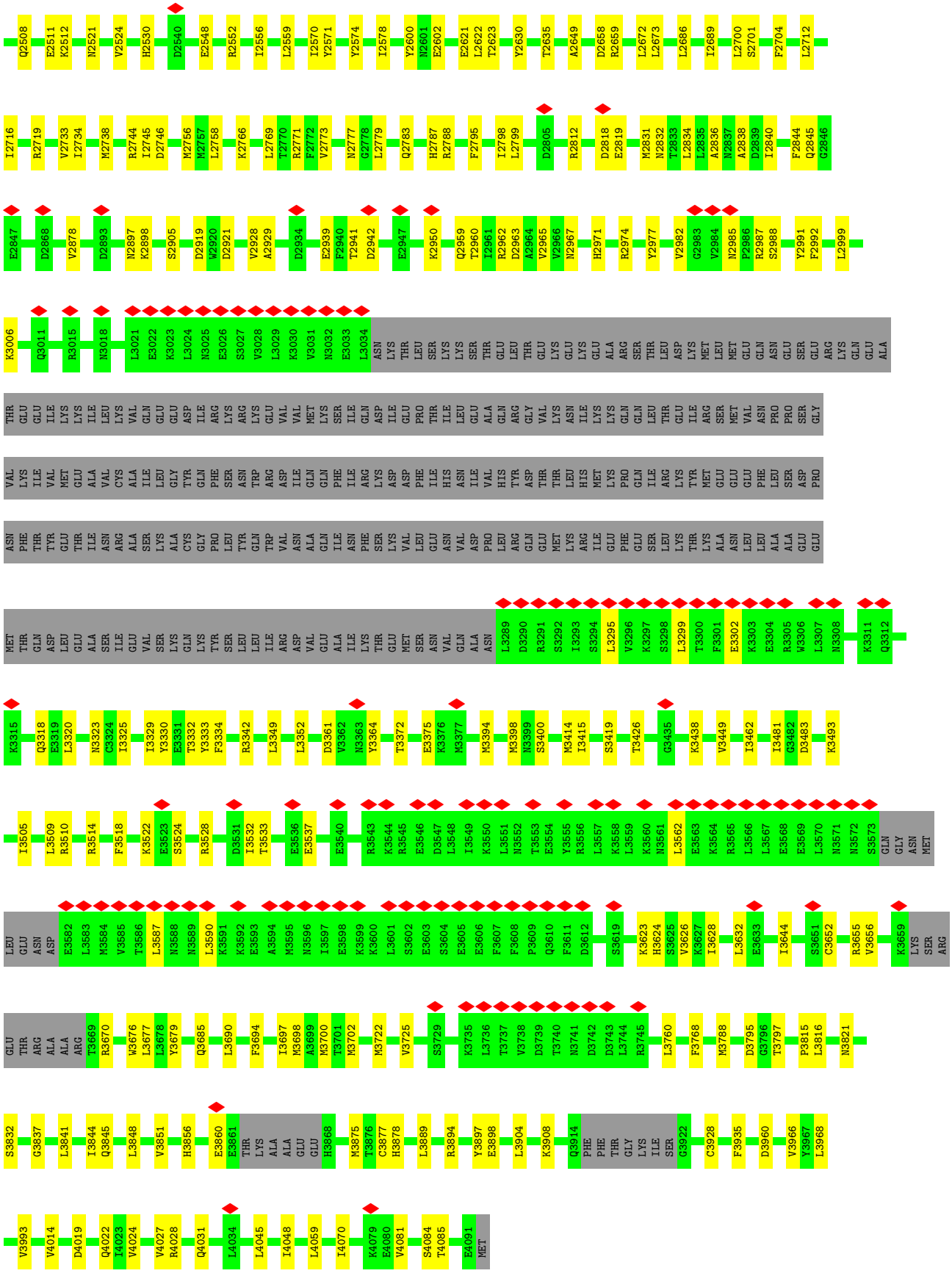
Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total	Mg	0
			1	1	

3 Residue-property plots (i)

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

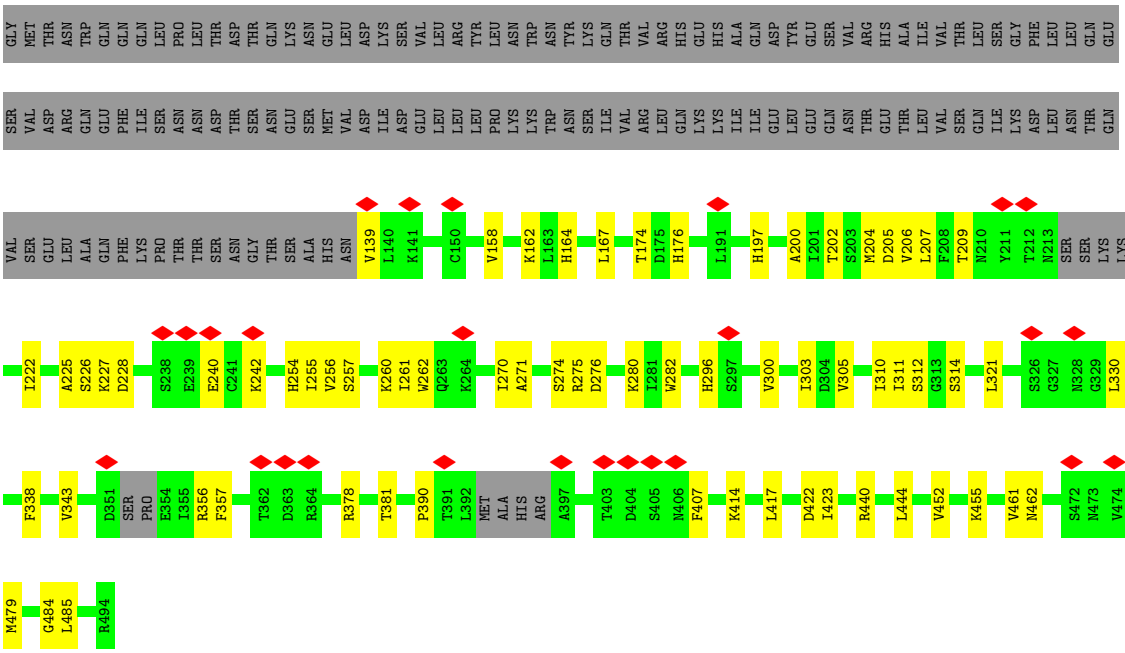
- Molecule 1: Dynein heavy chain, cytoplasmic




Q2508 E2511 K2512 N2521 V2524 H2530 D2540 E2548 R2552 I2556 L2559 I2570 Y2571 Y2574 I2578 Y2600 N2601 E2602 E2621 L2622 T2623 Y2630 T2635 A2649 D2658 R2659 L2672 L2673 L2686 I2689 L2700 S2701 F2704 L2712
I2716 R2719 V2733 I2734 M2738 R2744 I2745 D2746 M2756 M2757 L2758 K2766 L2769 T2770 R2771 F2772 V2773 N2777 G2778 L2779 Q2783 H2787 R2788 F2795 I2798 L2799 D2805 R2812 D2818 E2819 M2831 N2832 T2833 L2834 L2835 A2836 N2837 A2838 D2839 I2840 F2844 Q2845 G2846
E2847 D2868 V2878 D2893 N2897 K2898 S2905 D2919 W2920 D2921 V2928 A2929 D2934 E2939 F2940 T2941 D2942 E2947 K2950 Q2959 T2960 I2961 R2962 D2963 A2964 V2965 Y2966 N2967 H2971 R2974 Y2977 V2982 G2983 V2984 N2985 P2986 R2987 S2988 Y2991 F2992 L2999
K3006 Q3011 R3015 N3018 L3021 E3022 K3023 L3024 N3025 E3026 S3027 V3028 L3029 K3030 V3031 N3032 E3033 L3034 ASN LYS THR LEU SER LYS LYS SER THR GLU LEU THR GLU LYS GLU LYS GLU ALA ARG SER THR LEU ASP LYS MET LEU MET GLU GLN ASN GLU SER GLU ARG LYS GLN GLU ALA
THR GLU GLU ILE LYS LYS ILE LEU LYS VAL GLN GLU GLU ASP ILE ARG LYS ARG LYS GLU VAL VAL MET LYS SER ILE GLN ASP ILE GLU PRO THR ILE LEU GLU ALA GLN ARG GLY VAL LYS ASN ILE LYS LYS GLN GLN LEU THR GLU ILE ARG SER MET VAL ASN PRO PRO SER GLY
VAL LYS ILE VAL MET GLU ALA VAL CYS ALA ILE LEU GLY TYR GLN PHE SER ASN TRP ARG ASP ILE GLN GLN PHE ILE ARG LYS ASP ASP PHE ILE HIS ASN ILE VAL HIS TYR ASP THR THR LEU HIS MET LYS PRO GLN ILE ARG LYS TYR MET GLU GLU GLU PHE LEU SER ASP PRO
ASN PHE THR TYR GLU THR ILE ASN ARG ALA SER LYS ALA CYS GLY PRO LEU TYR GLN TRP VAL ASN ALA GLN ILE ASN PHE SER LYS VAL LEU GLU ASN VAL ASP PRO LEU ARG GLN GLU MET LYS ARG ILE GLU PHE GLU SER LEU LYS THR LYS ALA ASN LEU LEU ALA ALA GLU GLU
MET THR GLN ASP LEU GLU ALA SER ILE GLU VAL SER LYS GLN LYS TYR SER LEU LEU ILE ARG ASP VAL GLU ALA ILE LYS THR GLU MET SER ASN VAL GLN ALA ASN L3289 D3290 R3291 S3292 I3293 S3294 L3295 V3296 K3297 S3298 L3299 T3300 F3301 E3302 K3303 E3304 R3305 W3306 L3307 N3308 K3311 Q3312
K3315 Q3318 E3319 L3320 N3323 C3324 I3325 I3329 Y3330 E3331 T3332 Y3333 F3334 R3342 L3349 L3352 D3361 V3362 N3363 Y3364 T3372 E3375 K3376 M3377 M3394 M3398 N3399 S3400 M3414 I3415 S3419 T3426 G3435 K3438 V3449 I3462 I3481 G3482 D3483 K3493
I3505 L3509 R3510 R3514 F3518 K3522 E3523 S3524 R3528 D3531 I3532 T3533 E3536 E3537 E3540 R3543 K3544 R3545 E3546 D3547 L3548 I3549 K3550 L3551 N3552 T3553 E3554 Y3555 R3556 L3557 K3558 L3559 K3560 N3561 L3562 E3563 K3564 R3565 L3566 L3567 E3568 E3569 L3570 N3571 N3572 S3573 GLN GLY ASN MET
LEU GLU ASN ASP E3582 L3583 M3584 V3585 T3586 L3587 N3588 N3589 L3590 K3591 K3592 E3593 A3594 M3595 N3596 I3597 E3598 K3599 K3600 L3601 S3602 E3603 S3604 E3605 E3606 F3607 F3608 P3609 Q3610 F3611 D3612 S3619 K3623 H3624 S3625 V3626 K3627 I3628 L3632 E3633 I3644 S3651 C3652 R3655 V3656 K3659 LYS SER ARG
GLU THR ARG ALA ALA ARG T3669 R3670 W3676 L3677 L3678 Y3679 Q3685 L3690 F3694 I3697 M3698 A3699 M3700 T3701 M3702 M3722 V3725 S3729 K3735 L3736 T3737 V3738 D3739 T3740 N3741 D3742 D3743 L3744 R3745 L3760 F3768 M3788 D3795 G3796 T3797 P3815 L3816 N3821
S3832 G3837 L3841 I3844 Q3845 L3848 V3851 H3856 E3860 E3861 THR LYS ALA ALA GLU GLU H3868 M3875 T3876 C3877 H3878 L3889 R3894 Y3897 E3898 L3904 K3908 Q3914 PHE PHE THR GLY LYS ILE SER G3922 C3928 F3935 D3960 V3966 Y3967 L3968
V3993 V4014 D4019 Q4022 T4023 V4024 V4027 R4028 Q4031 L4034 L4045 I4048 L4059 I4070 K4079 E4080 V4081 S4084 T4085 E4091 MET

• Molecule 2: Nuclear distribution protein PAC1

Chain C:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	40468	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	54.3	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.671	Depositor
Minimum map value	-0.993	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.040	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	408.31998, 408.31998, 408.31998	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.16, 1.16, 1.16	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ADP, ATP, MG

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	0.14	0/18613	0.32	0/25229
2	C	0.12	0/2758	0.33	0/3754
All	All	0.13	0/21371	0.32	0/28983

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	18250	0	17765	207	0
2	C	2687	0	2565	43	0
3	A	31	0	12	1	0
4	A	81	0	36	7	0
5	A	1	0	0	0	0
All	All	21050	0	20378	250	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 6.

The worst 5 of 250 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:C:209:THR:HG1	2:C:218:ASN:N	1.79	0.81
1:A:2971:HIS:HB3	1:A:3352:LEU:HD21	1.74	0.68
1:A:3845:GLN:HE21	1:A:3877:CYS:HB2	1.59	0.67
1:A:1823:ASP:OD1	1:A:1824:ASP:N	2.28	0.66
1:A:2602:GLU:HB3	1:A:2672:LEU:HD11	1.75	0.66

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	2322/2875 (81%)	2271 (98%)	51 (2%)	0	100	100
2	C	338/495 (68%)	321 (95%)	17 (5%)	0	100	100
All	All	2660/3370 (79%)	2592 (97%)	68 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	1937/2631 (74%)	1937 (100%)	0	100	100
2	C	287/461 (62%)	287 (100%)	0	100	100
All	All	2224/3092 (72%)	2224 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 20 such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3018	ASN
1	A	3843	ASN
2	C	490	ASN
2	C	164	HIS
1	A	2167	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 5 ligands modelled in this entry, 1 is monoatomic - leaving 4 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	ADP	A	4102	-	28,29,29	1.40	4 (14%)	43,45,45	1.83	10 (23%)
4	ADP	A	4104	5	28,29,29	1.39	4 (14%)	43,45,45	1.85	8 (18%)
3	ATP	A	4101	-	32,33,33	0.43	0	48,52,52	0.37	0
4	ADP	A	4103	-	28,29,29	1.39	4 (14%)	43,45,45	1.84	8 (18%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	ADP	A	4102	-	-	6/16/32/32	0/3/3/3
4	ADP	A	4104	5	-	6/16/32/32	0/3/3/3
3	ATP	A	4101	-	-	3/22/38/38	0/3/3/3
4	ADP	A	4103	-	-	2/16/32/32	0/3/3/3

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	4104	ADP	C5-C4	4.66	1.47	1.39
4	A	4102	ADP	C5-C4	4.63	1.47	1.39
4	A	4103	ADP	C5-C4	4.58	1.47	1.39
4	A	4103	ADP	C5-C6	2.64	1.48	1.41
4	A	4102	ADP	C5-C6	2.64	1.48	1.41

The worst 5 of 26 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	4104	ADP	C5-C4-N3	-6.15	118.25	126.72
4	A	4103	ADP	C5-C4-N3	-6.01	118.44	126.72
4	A	4102	ADP	C5-C4-N3	-5.71	118.85	126.72
4	A	4104	ADP	N3-C4-N9	4.90	135.50	127.17
4	A	4103	ADP	N3-C4-N9	4.82	135.37	127.17

There are no chirality outliers.

5 of 17 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	4101	ATP	PB-O3B-PG-O2G
4	A	4102	ADP	C5'-O5'-PA-O1A
4	A	4103	ADP	C5'-O5'-PA-O1A
4	A	4103	ADP	C5'-O5'-PA-O3A
4	A	4104	ADP	C5'-O5'-PA-O1A

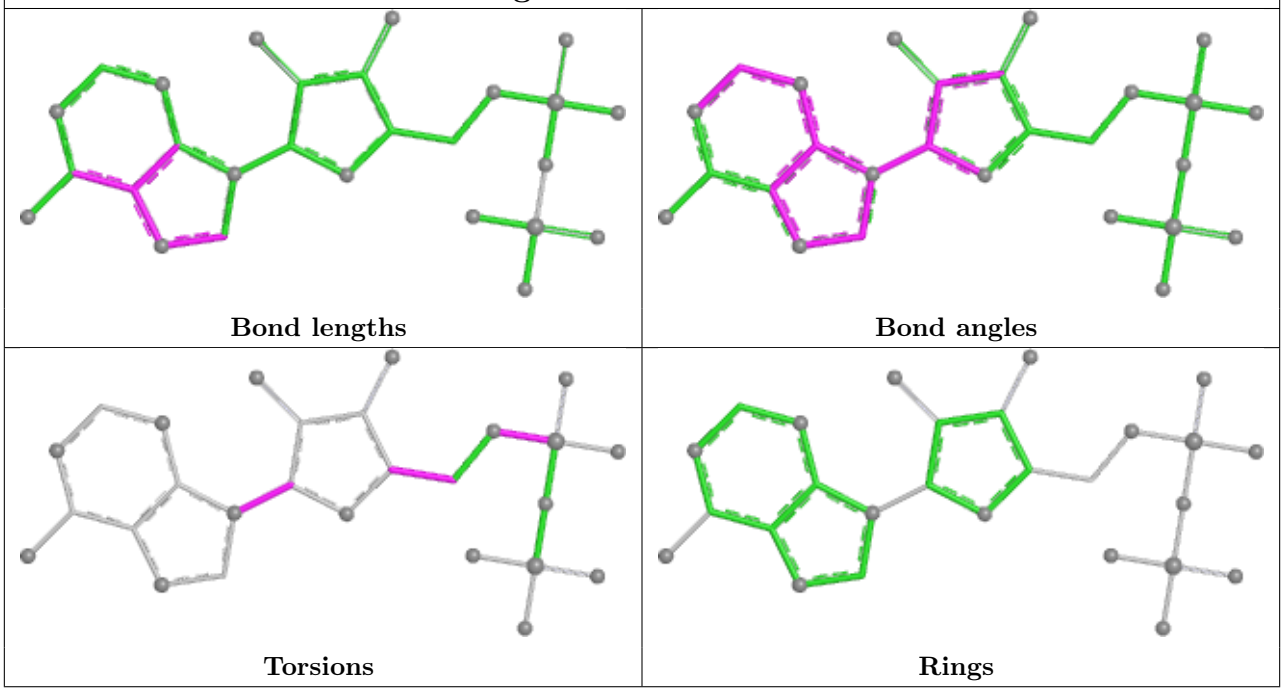
There are no ring outliers.

4 monomers are involved in 8 short contacts:

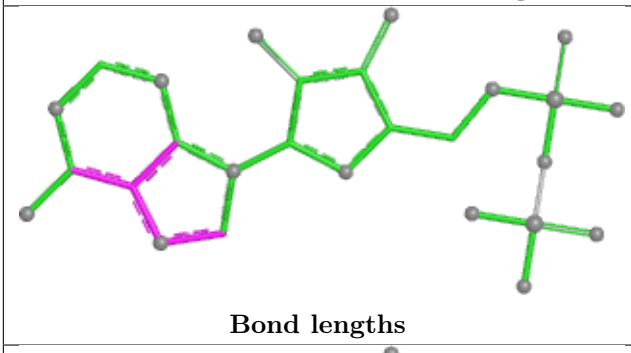
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	4102	ADP	4	0
4	A	4104	ADP	2	0
3	A	4101	ATP	1	0
4	A	4103	ADP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

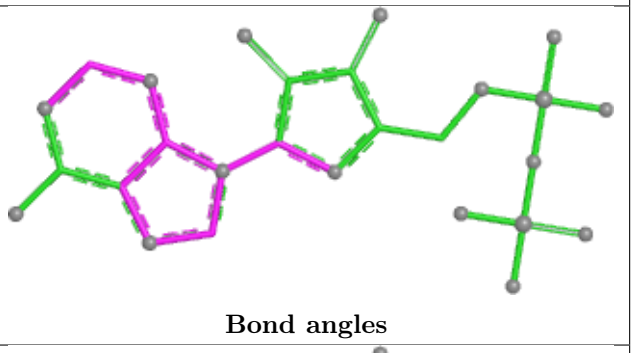
Ligand ADP A 4102



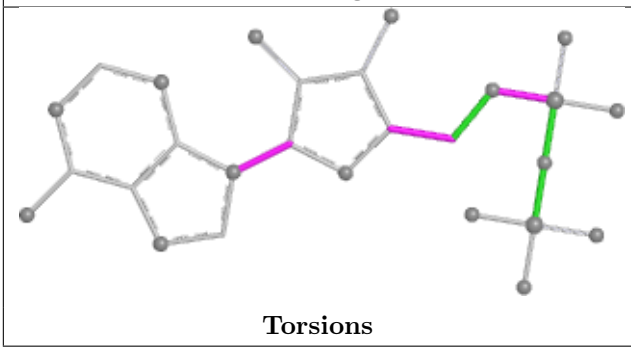
Ligand ADP A 4104



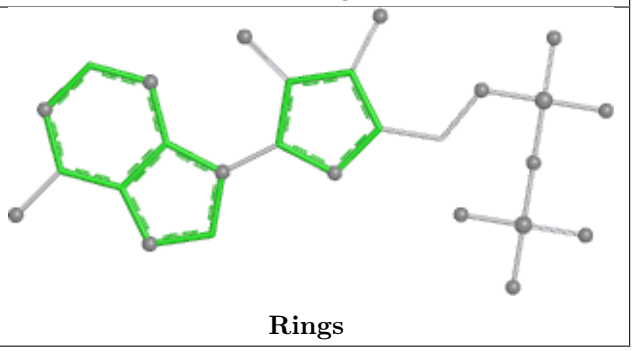
Bond lengths



Bond angles

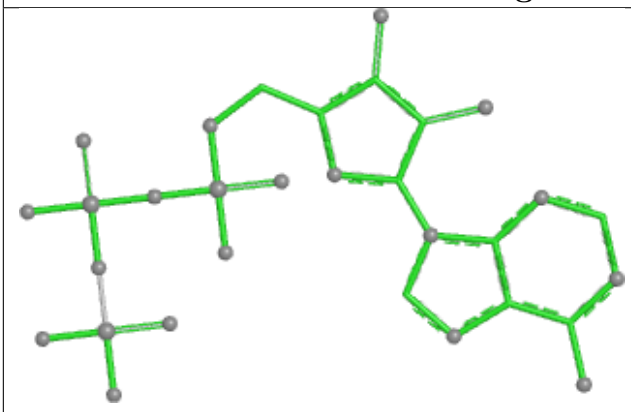


Torsions

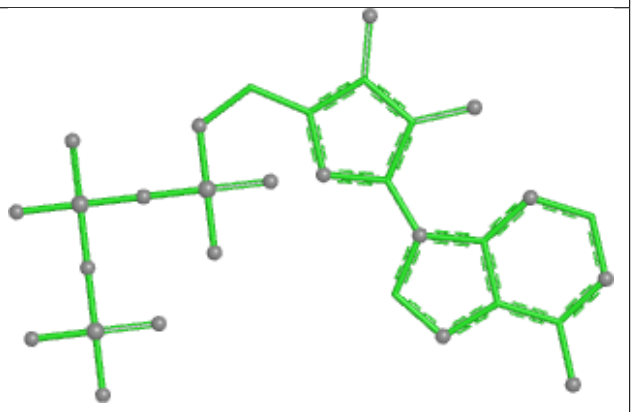


Rings

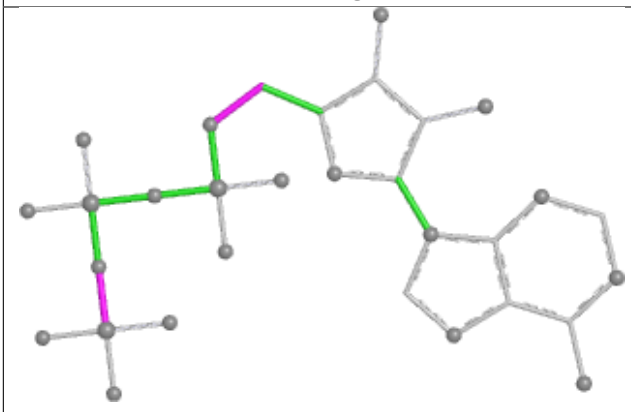
Ligand ATP A 4101



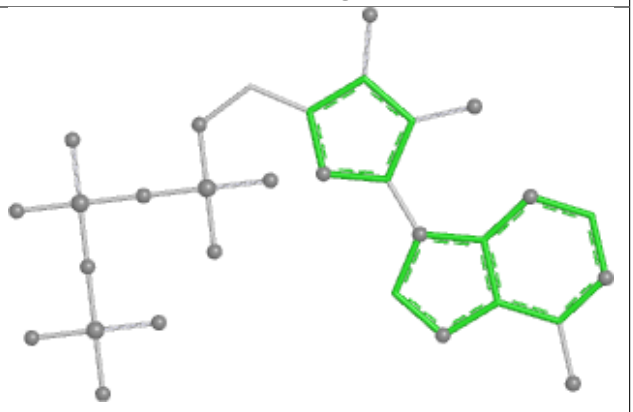
Bond lengths



Bond angles

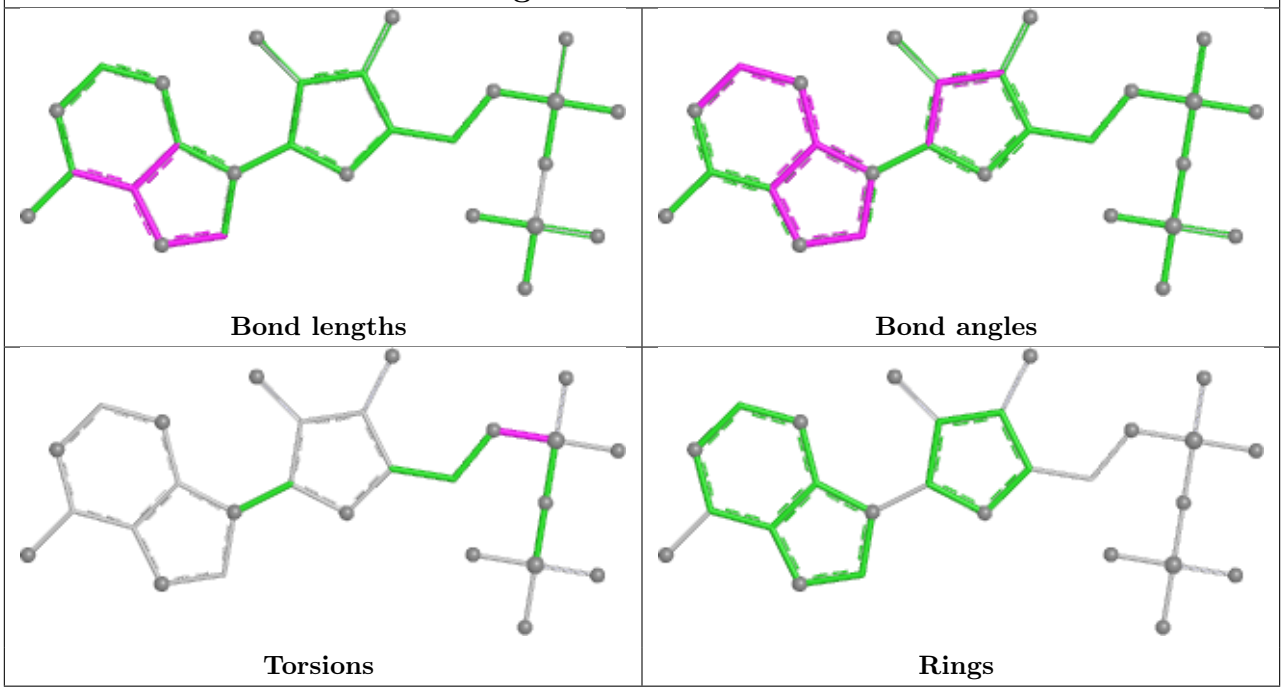


Torsions



Rings

Ligand ADP A 4103



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.

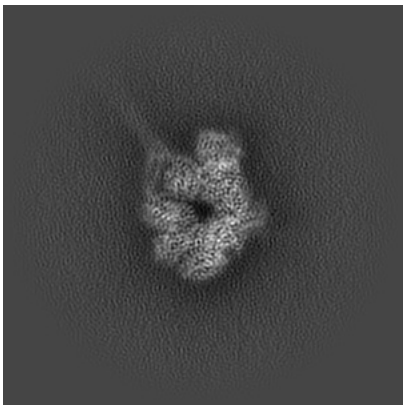
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-46942. These allow visual inspection of the internal detail of the map and identification of artifacts.

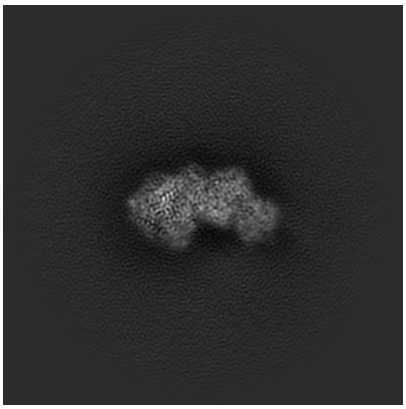
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

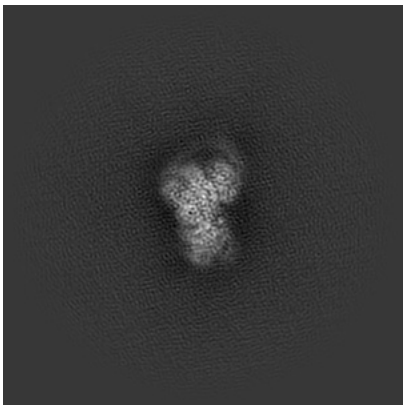
6.1.1 Primary map



X

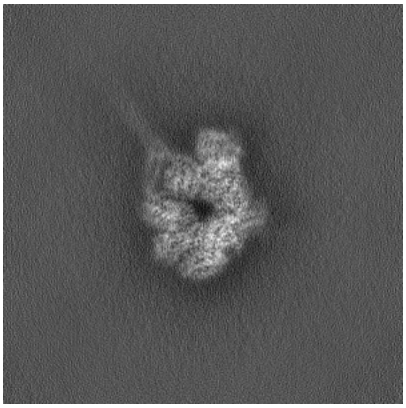


Y

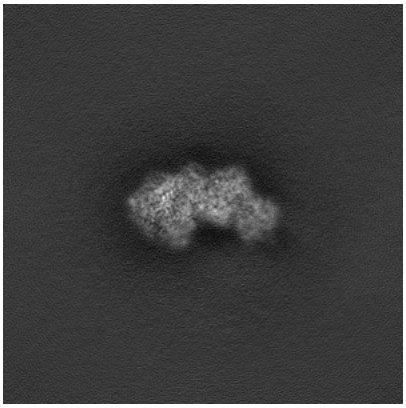


Z

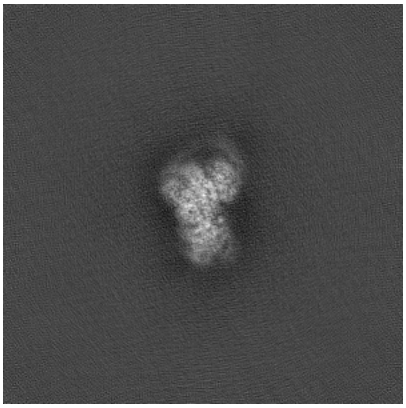
6.1.2 Raw map



X



Y

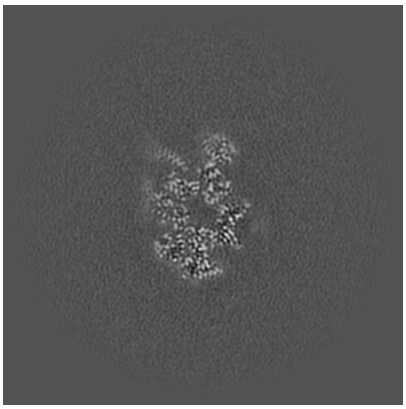


Z

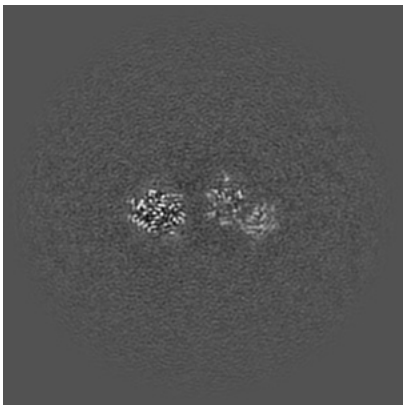
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

6.2.1 Primary map



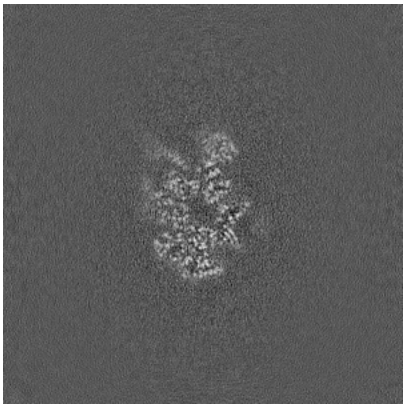
X Index: 176



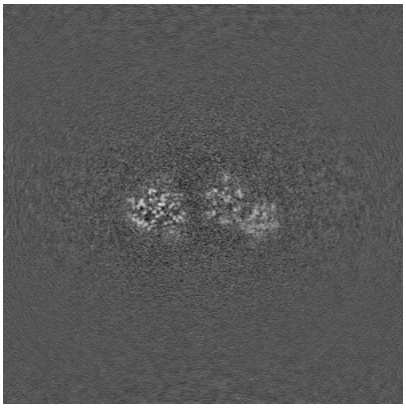
Y Index: 176

Z Index: 176

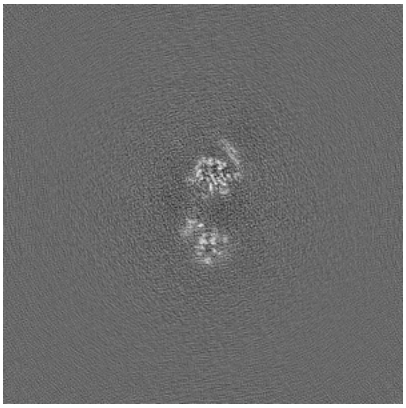
6.2.2 Raw map



X Index: 176



Y Index: 176

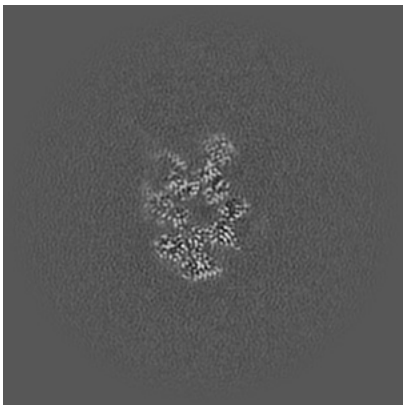


Z Index: 176

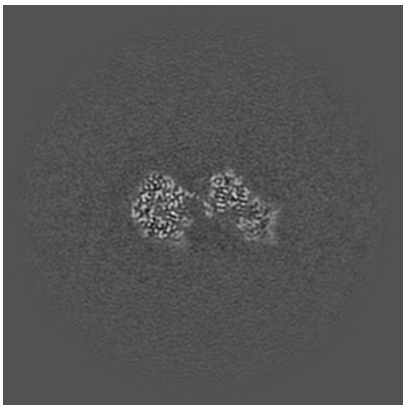
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

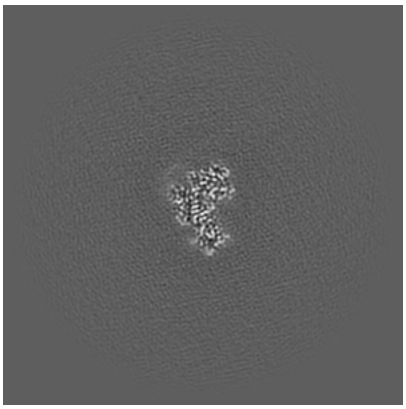
6.3.1 Primary map



X Index: 177

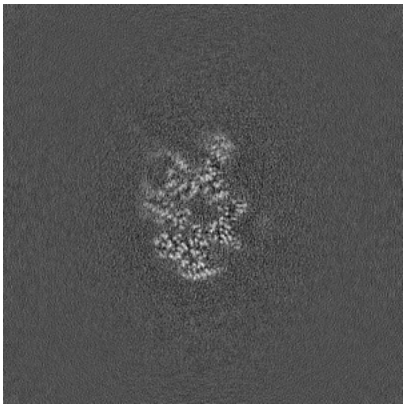


Y Index: 183

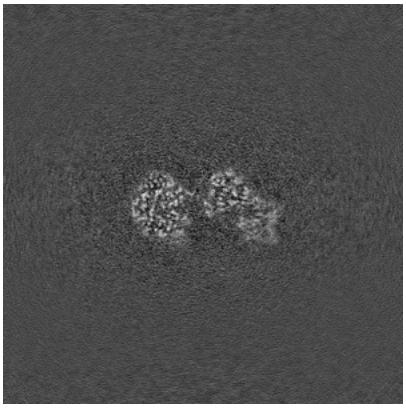


Z Index: 144

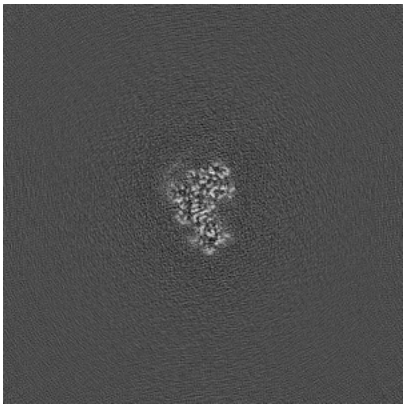
6.3.2 Raw map



X Index: 178



Y Index: 183

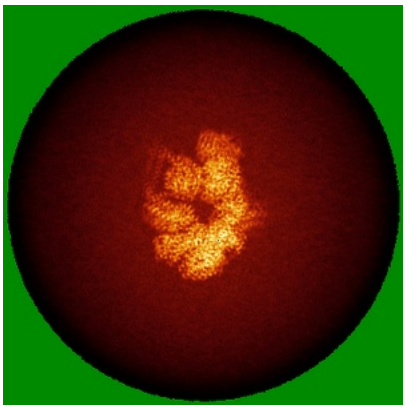


Z Index: 144

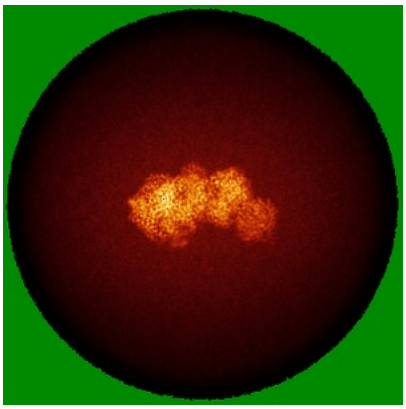
The images above show the largest variance slices of the map in three orthogonal directions.

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

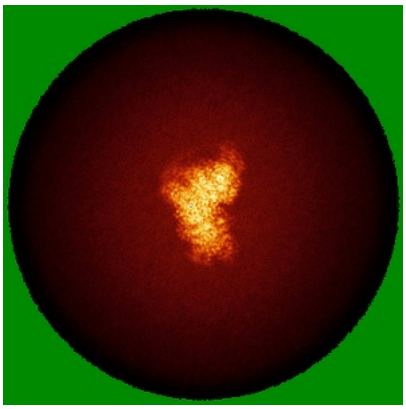
6.4.1 Primary map



X

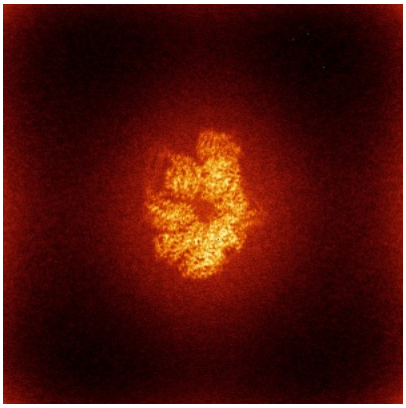


Y

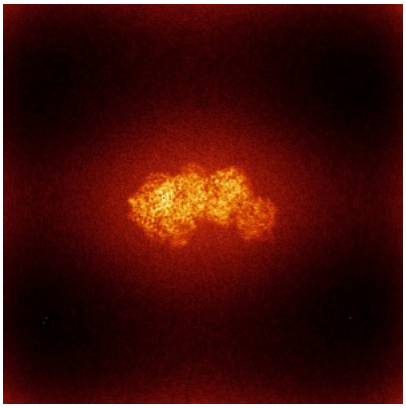


Z

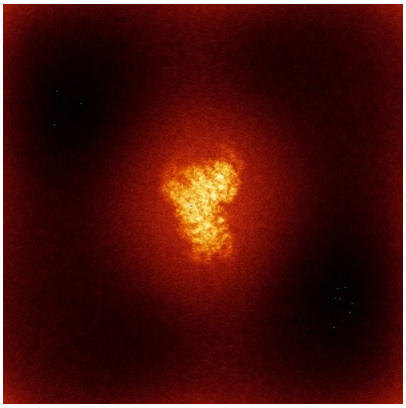
6.4.2 Raw map



X



Y

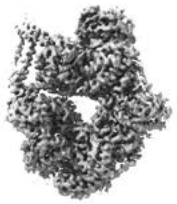


Z

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 0.25. 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.

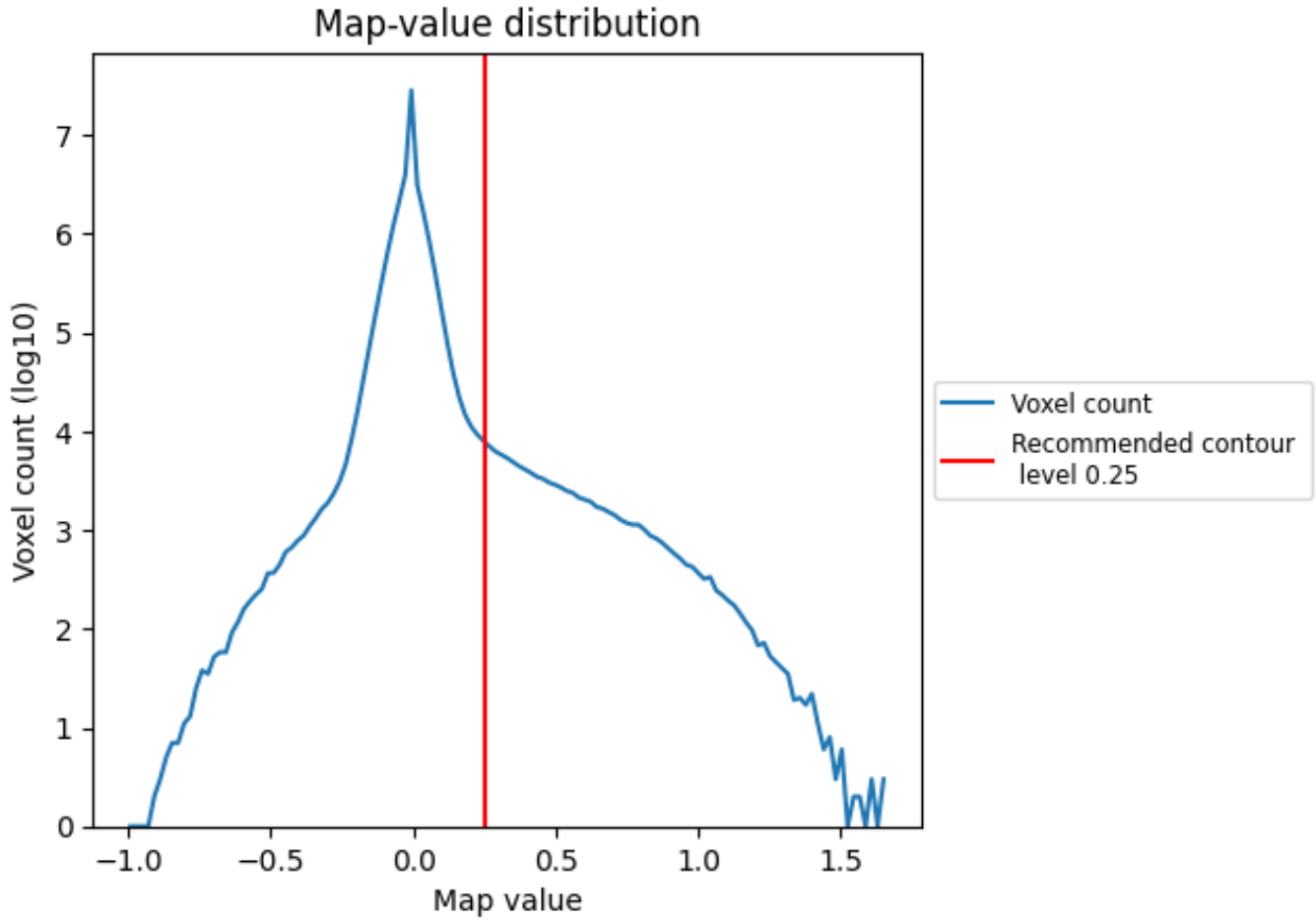
6.6 Mask visualisation (i)

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

7 Map analysis

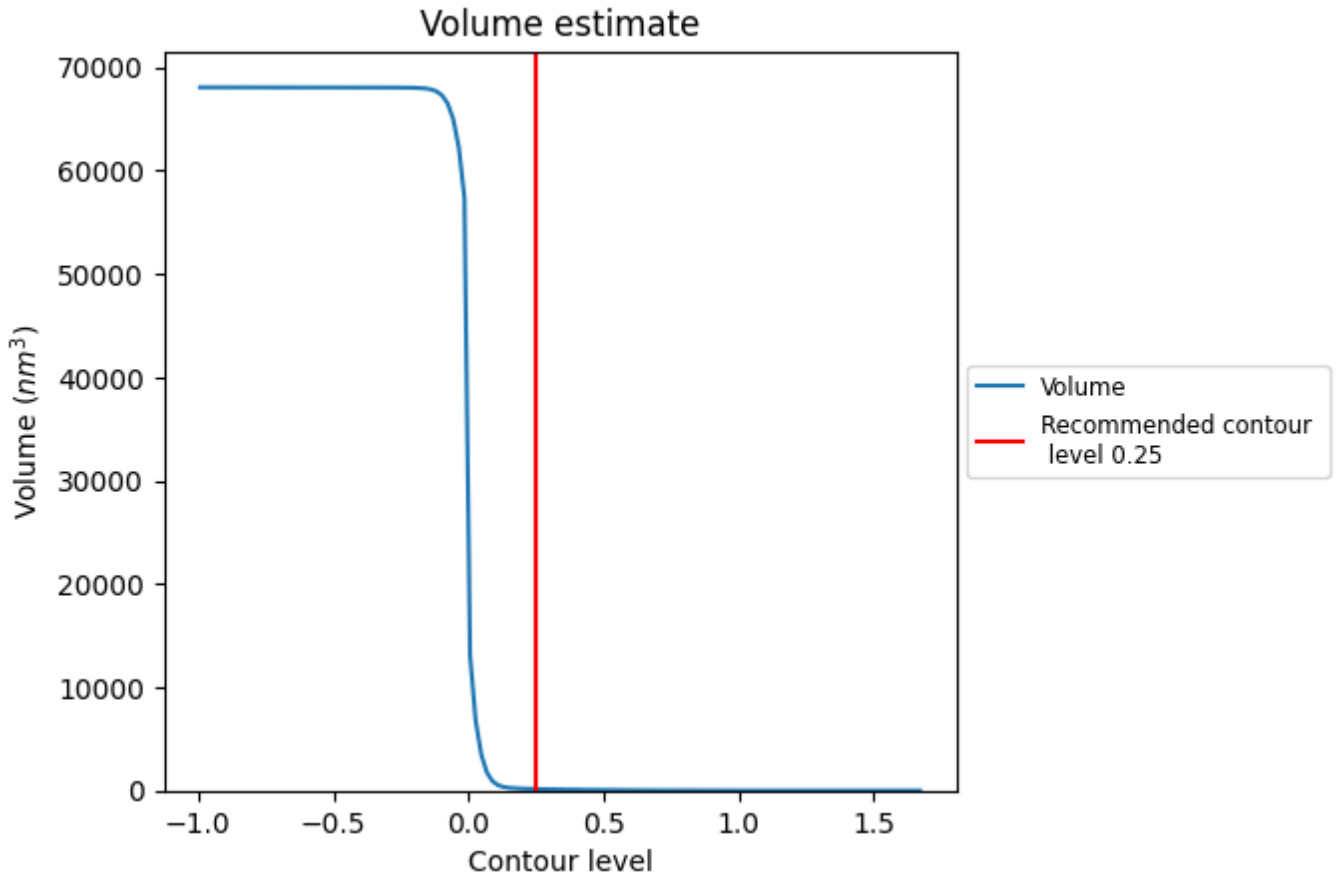
This section contains the results of statistical analysis of the map.

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.

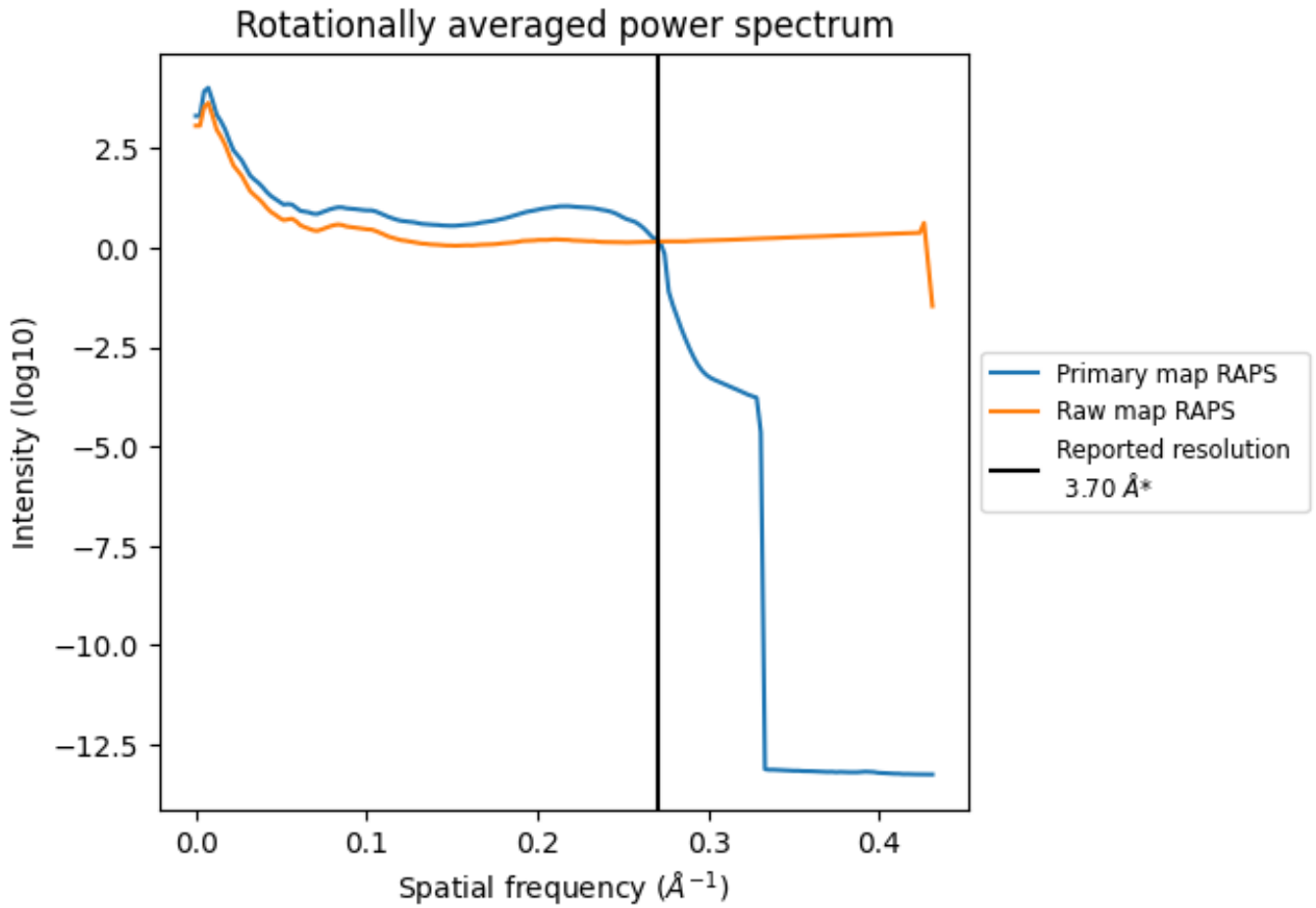
7.2 Volume estimate (i)



The volume at the recommended contour level is 147 nm^3; this corresponds to an approximate mass of 133 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)

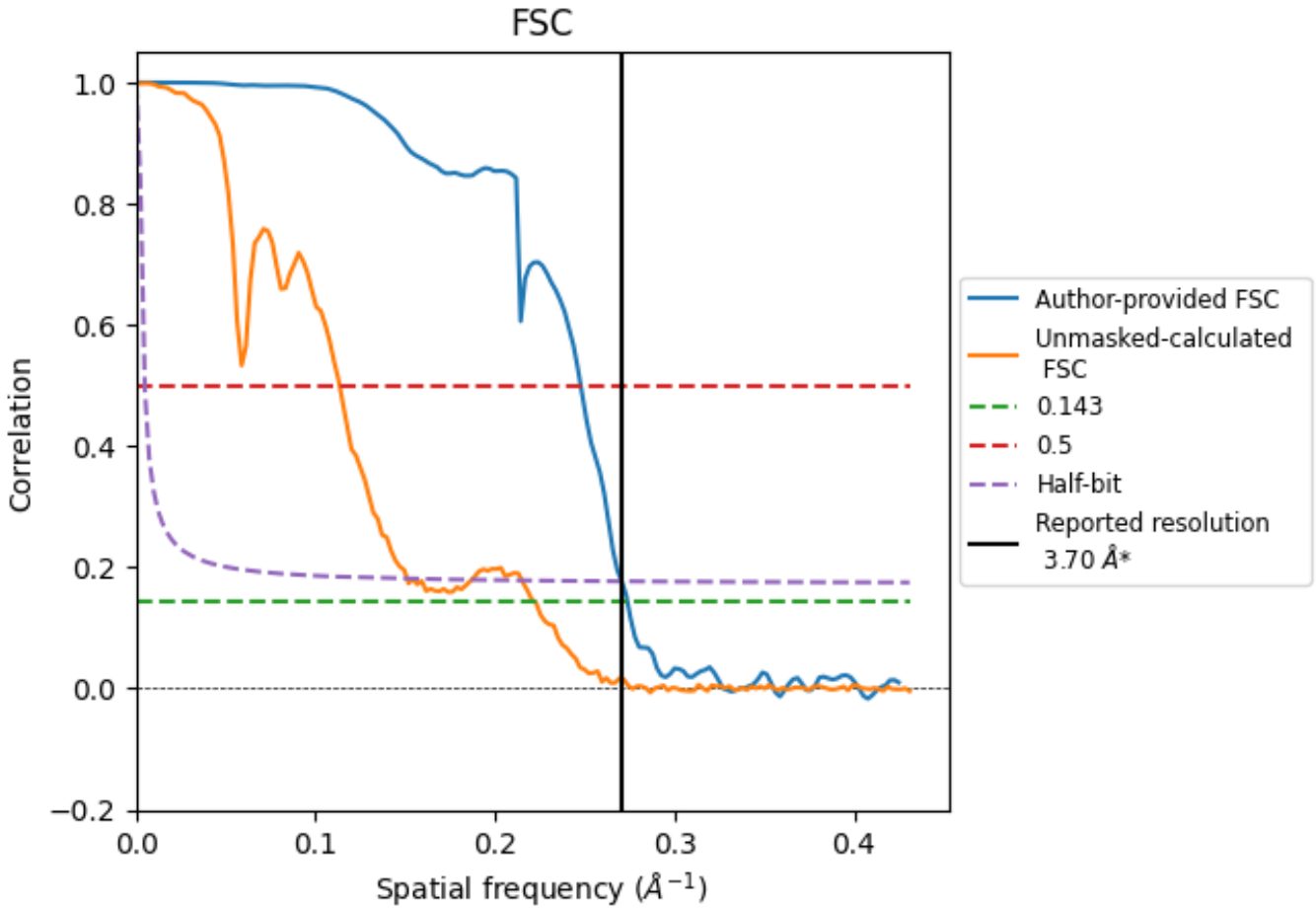


*Reported resolution corresponds to spatial frequency of 0.270 $Å^{-1}$

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 0.270 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.65	4.04	3.70
Unmasked-calculated*	4.50	8.83	6.62

*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 4.50 differs from the reported value 3.7 by more than 10 %

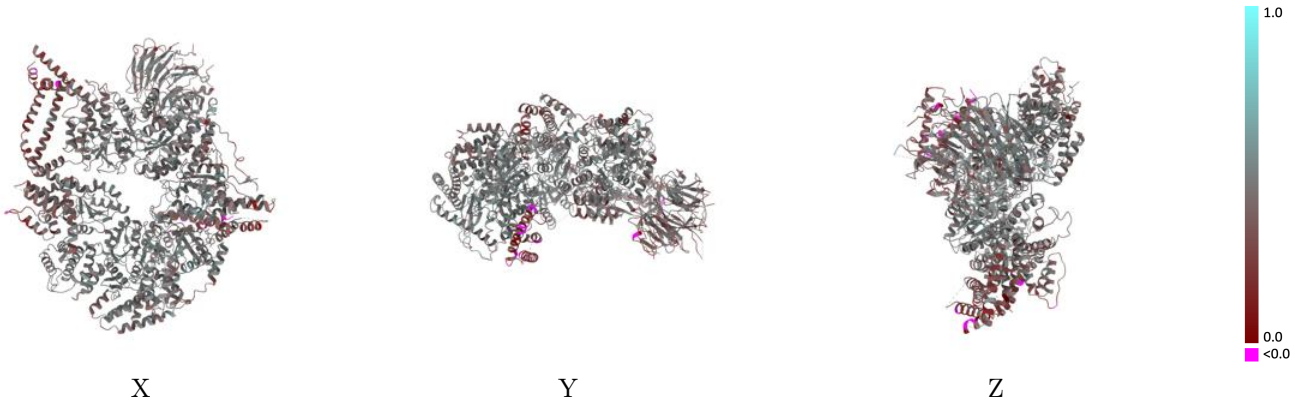
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-46942 and PDB model 9DK0. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay

This section was not generated.

9.2 Q-score mapped to coordinate model

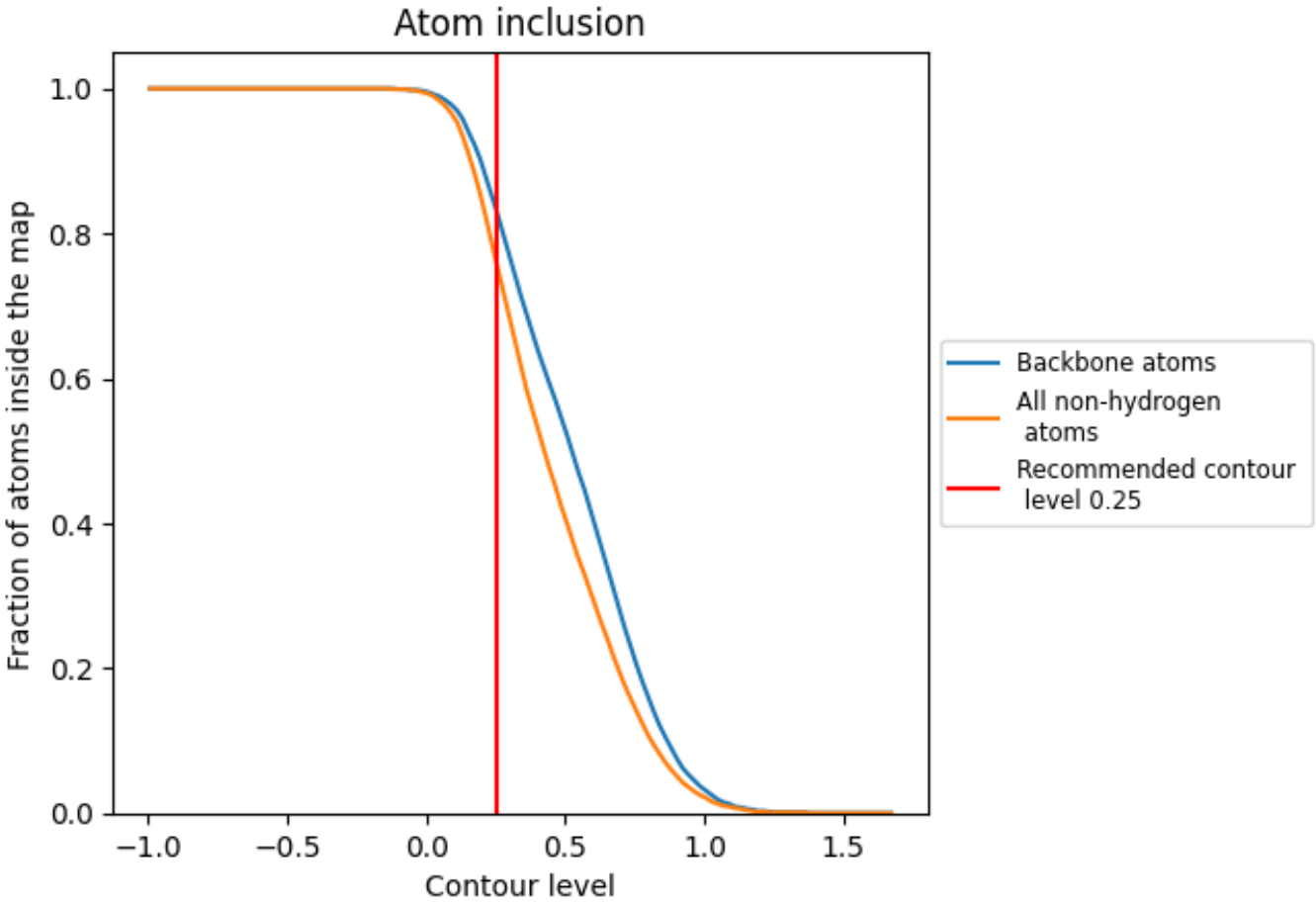


The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

This section was not generated.

9.4 Atom inclusion (i)



At the recommended contour level, 83% of all backbone atoms, 76% 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 (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7620	0.4440
A	0.7700	0.4490
C	0.7120	0.4130