



wwPDB EM Validation Summary Report ⓘ

Jul 7, 2024 – 03:34 pm BST

PDB ID : 7OTM
EMDB ID : EMD-13062
Title : Cryo-EM structure of DNA-PKcs in complex with NU7441
Authors : Liang, S.; Thomas, S.E.; Blundell, T.L.
Deposited on : 2021-06-10
Resolution : 3.33 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.dev92
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
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

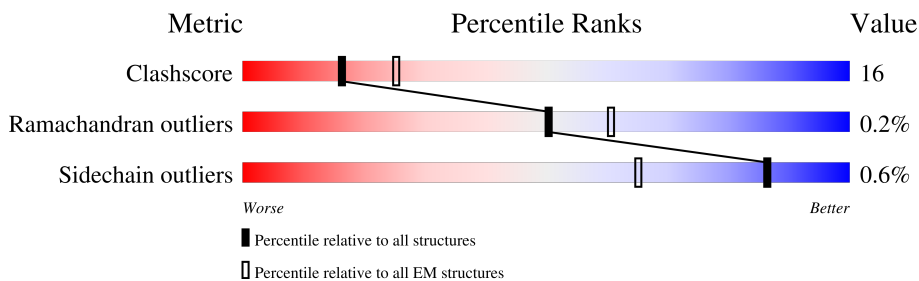
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.33 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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	4148	

2 Entry composition [i](#)

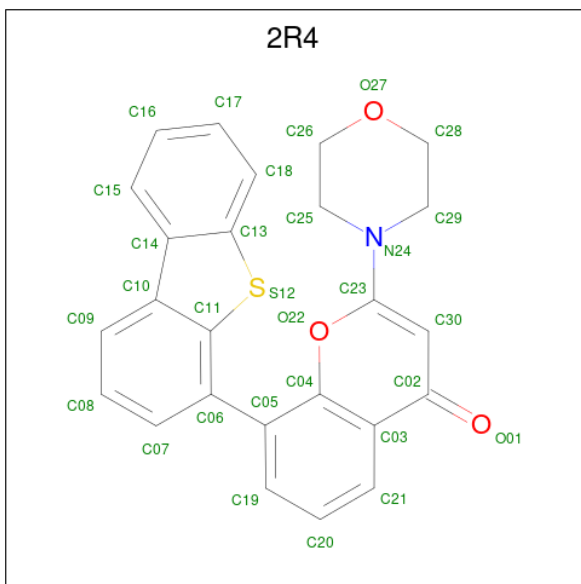
There are 2 unique types of molecules in this entry. The entry contains 29040 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called DNA-dependent protein kinase catalytic subunit, DNA-PKcs.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3656	29010	18609	4903	5307	191	0	0

- Molecule 2 is 8-(dibenzo[b,d]thiophen-4-yl)-2-(morpholin-4-yl)-4H-chromen-4-one (three-letter code: 2R4) (formula: C₂₅H₁₉NO₃S) (labeled as "Ligand of Interest" by depositor).

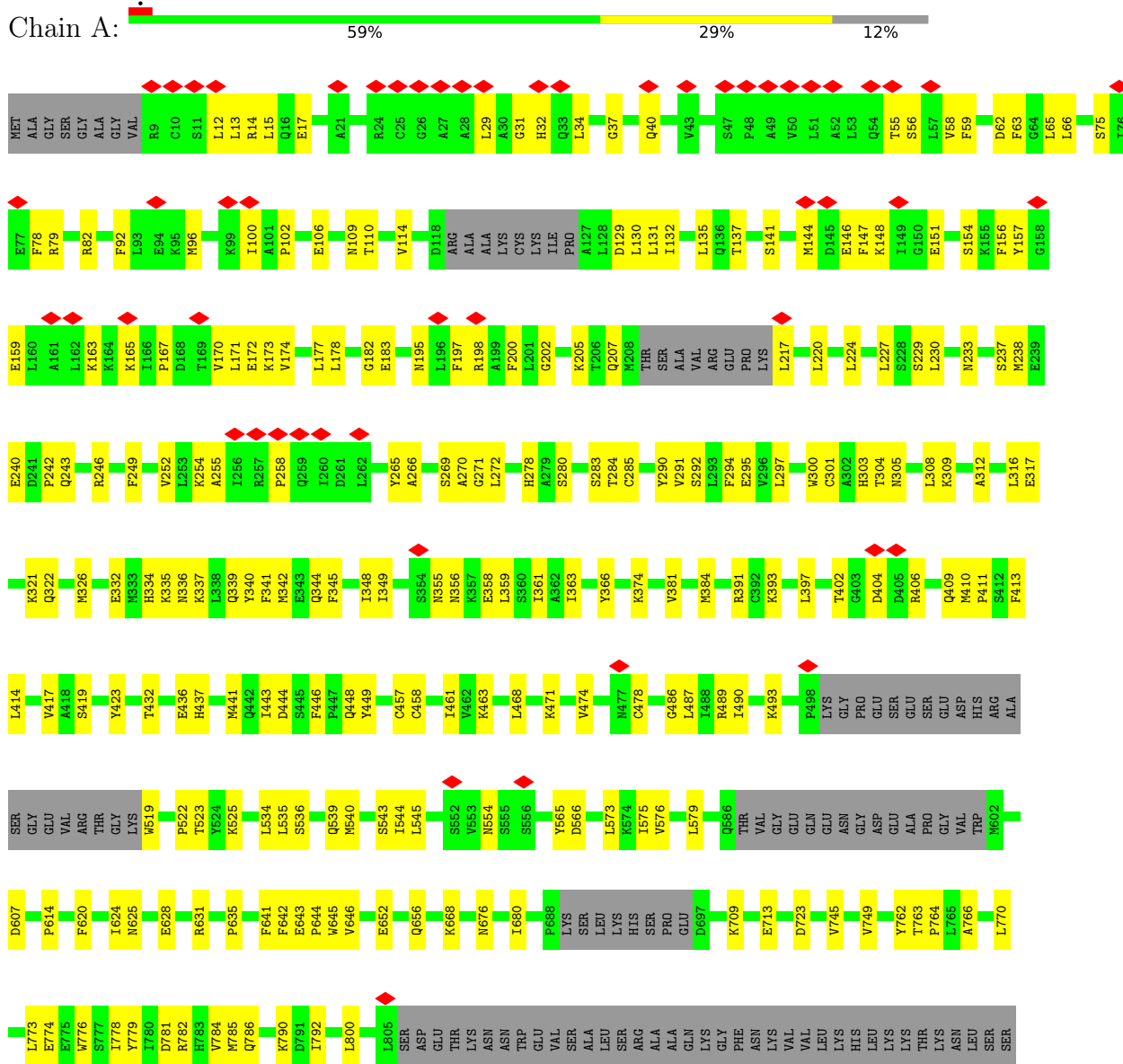


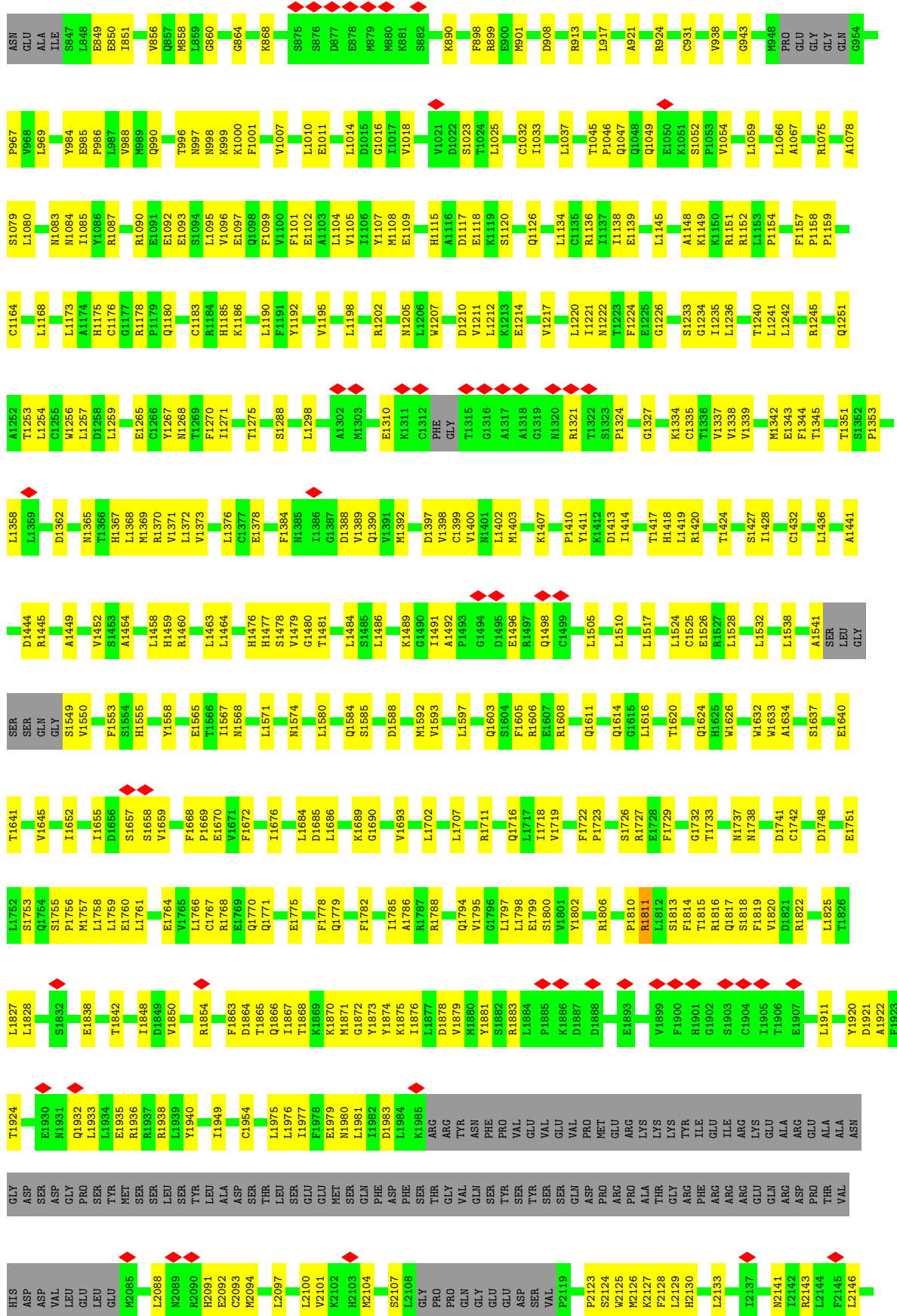
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	S	
2	A	1	30	25	1	3	1	0

3 Residue-property plots i

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

- Molecule 1: DNA-dependent protein kinase catalytic subunit,DNA-PKCs





M3502	P3405	V3297	Y3043	P2902	PRO	ASP	E2613	D2439	R2328	W2245	L2151
V3503	A3406	L3298	M3044	P2783	ASP	L2783	L2517	E2430	Y2329	K2246	L2151
A3504	I3410	L3301	S3047	Q2784	PRO	Q2784	Q2518	R2431	W2330	F2157	F2157
L3505	D3411	L3301	L3047	L2785	LEU	L2785	L2519	Q2432	M2331	L2249	L2160
L3506	T3415	E3309	L3051	K2786	LEU	K2786	R2522	I2439	E2332	P2252	W2164
D3509	L3416	M3310	D3058	H2787	ALA	H2787	M2523	Y2263	L2336	Y2263	W2164
V3512	R3425	S3313	Q3059	S2788	ARG	S2788	N2524	M2442	E2337	R2254	F2167
A3513	K3426	S3314	Q3059	S2789	ARG	S2789	M2525	M2443	L2255	L2255	L2168
V3514	V3427	S3315	F3072	A2796	ARG	A2796	W2526	K2444	E2339	F2257	L2169
Q3515	E3428	L3316	E3073	A2796	ARG	A2796	W2526	K2445	F2257	F2257	L2169
Q3516	E3429	L3316	L3073	PHE	ALA	L3073	H2527	L2446	Q2347	Q2347	Q2170
S3517	M3430	N3319	Q3074	GLY	GLN	Q3074	H2527	L2446	Q2348	Q2348	L2171
V3518	N3430	L3320	I3077	ALA	ARG	L3320	R2530	R2452	F2260	F2260	L2171
T3522	VAL	L3320	L3077	L2916	THR	L2916	T2535	E2453	S2261	M2177	M2177
V3525	SER	F3323	L3078	P2917	ASP	P2917	T2535	L2454	Q2350	G2178	G2178
I3529	VAL	R3324	E3079	P2918	ASP	P2918	L2536	L2455	Q2351	G2262	G2262
V3530	ILE	R3324	L3080	F2809	LEU	F2809	L2540	N2456	Q2353	Q2353	Q2179
V3531	ASP	N3327	L3088	F2813	THR	F2813	L2540	N2457	E2357	N2270	H2183
V3532	SER	L3089	L3089	L2817	LEU	L2817	A2541	V2458	F2360	S2271	H2184
V3533	ALA	L3091	L3091	E2925	MET	E2925	L2542	V2459	E2460	V2272	M2185
V3534	GLU	L3092	L3092	E2925	TYR	E2925	S2547	F2461	I2274	I2274	V2186
V3535	GLN	L3092	L3092	E2925	ARG	E2925	P2548	F2461	I2274	I2274	V2186
V3536	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3537	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3538	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3539	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3540	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3541	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3542	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3543	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3544	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3545	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3546	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3547	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3548	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3549	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3550	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3551	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3552	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3553	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3554	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3555	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3556	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3557	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3558	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3559	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3560	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3561	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3562	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3563	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3564	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3565	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3566	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
V3567	GLN	L3092	L3092	E2925	ARG	E2925	K2549	F2461	I2274	I2274	V2186
D3570	R3474	S3366	R3167	K3267	ASP	K3267	HIS	D2482	L2396	S2297	V2223
A3574	Y3475	S3367	F3168	T3268	PRO	T3268	PRO	R2485	C2397	E2288	F2224
L3575	M3483	E3368	F3169	R3269	LEU	R3269	LEU	D2486	L2398	F2226	H2225
L3578	T3484	L3377	M3176	D3270	THR	D3270	THR	D2486	L2398	F2226	H2225
L3578	I3487	Y3378	M3179	C3281	GLY	C3281	TYR	S2489	F2399	F2300	K2227
D3587	V3490	A3388	M3179	C3281	THR	C3281	THR	S2489	F2399	F2300	K2227
V3588	P3491	A3396	L3182	H3285	ASP	H3285	THR	E2490	L2411	V2304	V2230
S3589	C3492	GLN	L3182	H3285	VAL	L3182	ILE	M2493	Y2412	V2304	F2231
Q3493	R3493	PRO	R3186	S3288	ARG	R3186	ASP	D2494	K2313	H2233	H2233
Q3494	C3494	PRO	C3187	R3289	ASN	C3187	ASP	D2494	L2415	L2235	L2235
F3495	Q3495	PRO	C3187	R3289	SER	C3187	SER	D2494	L2415	L2235	L2235
V3592	F3495	SER	E3194	C3293	VAL	E3194	TRP	E2497	V2421	Y2316	A2317
V3593	W3498	TRP	E3195	S3294	ARG	E3195	ARG	E2497	V2421	Y2316	A2317
V3596	A3597	CYS	K3196	E3295	LYS	K3196	PHE	L2506	M2424	K2239	I2238
A3597	L3197	GLY	L3197	Q3296	ALA	L3197	ARG	L2510	R2425	V2322	I2238
										L2323	L2241
										L2327	L2241

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	115505	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 ($e^-/\text{\AA}^2$)	47.3	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.057	Depositor
Minimum map value	-0.958	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.046	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	339.04, 339.04, 339.04	wwPDB
Map dimensions	260, 260, 260	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.304, 1.304, 1.304	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: 2R4

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	0.42	0/29502	0.54	0/39893

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 [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	29010	0	29195	873	0
2	A	30	0	19	8	0
All	All	29040	0	29214	873	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 16.

The worst 5 of 873 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:3911:ILE:HD11	1:A:3928:PHE:CE2	1.57	1.37
1:A:3911:ILE:CD1	1:A:3928:PHE:CE2	2.31	1.13

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3753:LYS:HD3	1:A:3803:ILE:HD11	1.32	1.10
1:A:3809:THR:HB	1:A:3929:MET:HE3	1.39	1.04
1:A:3804:GLU:HG3	1:A:3804:GLU:O	1.53	1.03

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	3602/4148 (87%)	3262 (91%)	332 (9%)	8 (0%)	47 78

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	723	ASP
1	A	2336	ILE
1	A	3730	ALA
1	A	3406	ALA
1	A	3804	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	3196/3671 (87%)	3178 (99%)	18 (1%)	86 92

5 of 18 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3756	GLU
1	A	3807	GLU
1	A	3804	GLU
1	A	3355	LYS
1	A	3753	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 11 such sidechains are listed below:

Mol	Chain	Res	Type
1	A	2518	GLN
1	A	2523	ASN
1	A	4018	GLN
1	A	2787	HIS
1	A	2225	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is modelled in this entry.

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
2	2R4	A	6101	-	32,35,35	1.52	4 (12%)	38,51,51	1.63	8 (21%)

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
2	2R4	A	6101	-	-	2/8/16/16	0/6/6/6

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	6101	2R4	C06-C05	-4.89	1.43	1.50
2	A	6101	2R4	C03-C02	-3.43	1.42	1.48
2	A	6101	2R4	C30-C02	-2.13	1.40	1.44
2	A	6101	2R4	C07-C06	2.07	1.42	1.38

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	6101	2R4	C14-C10-C11	4.30	113.07	106.27
2	A	6101	2R4	C04-O22-C23	4.09	124.63	118.03
2	A	6101	2R4	O22-C04-C03	-3.31	117.31	121.27
2	A	6101	2R4	C15-C14-C10	-2.49	127.69	133.15
2	A	6101	2R4	C19-C05-C06	2.40	123.16	119.27

There are no chirality outliers.

All (2) torsion outliers are listed below:

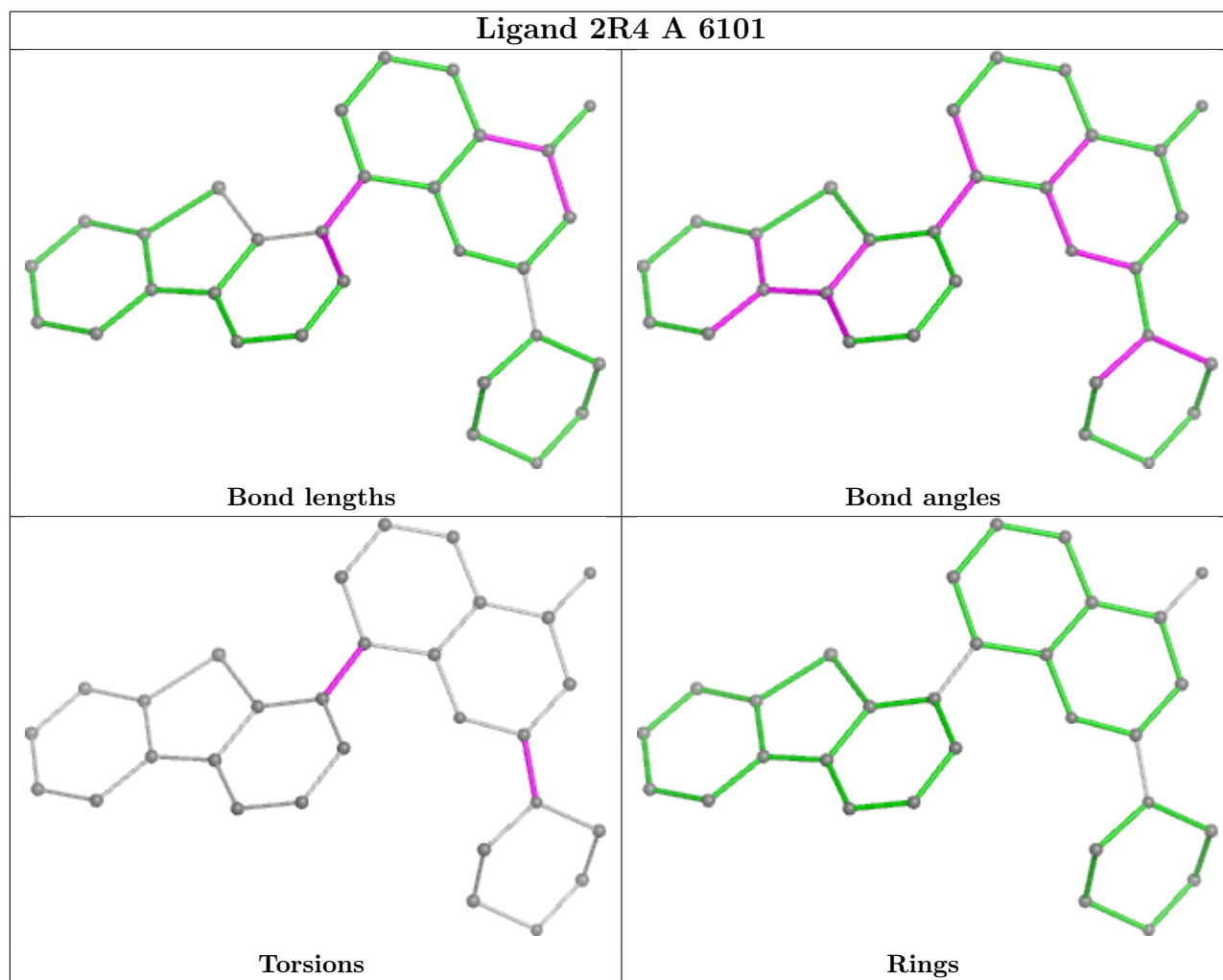
Mol	Chain	Res	Type	Atoms
2	A	6101	2R4	C30-C23-N24-C25
2	A	6101	2R4	C19-C05-C06-C07

There are no ring outliers.

1 monomer is involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	6101	2R4	8	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 than 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.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	4128:MET	C	6001:UNK	N	83.48

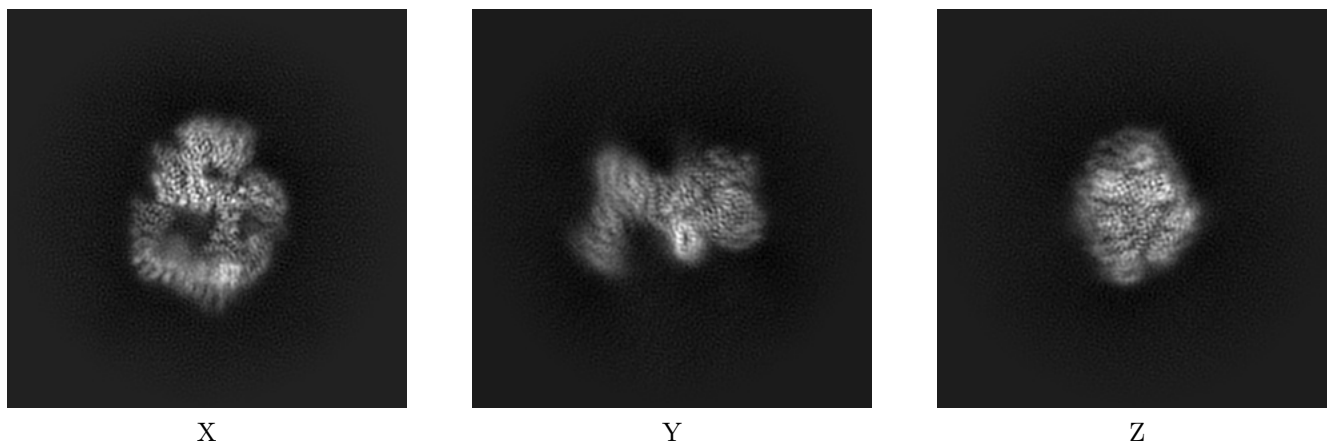
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13062. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

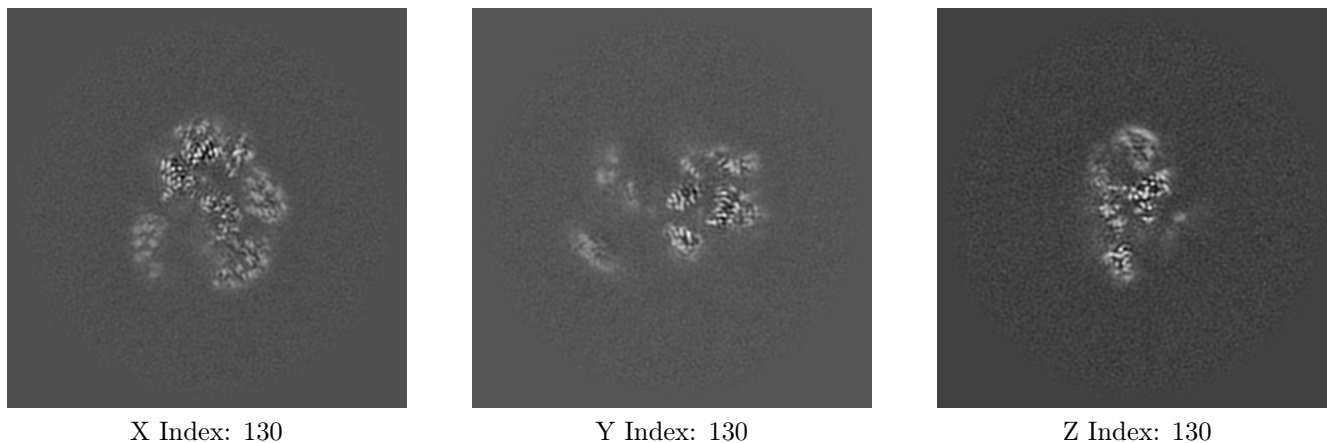
6.1.1 Primary map



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

6.2 Central slices [i](#)

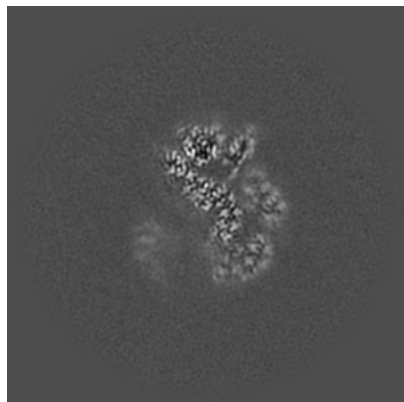
6.2.1 Primary map



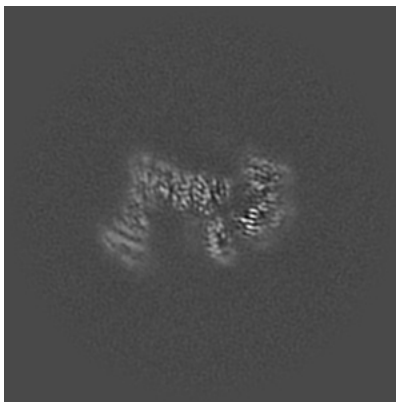
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [\(i\)](#)

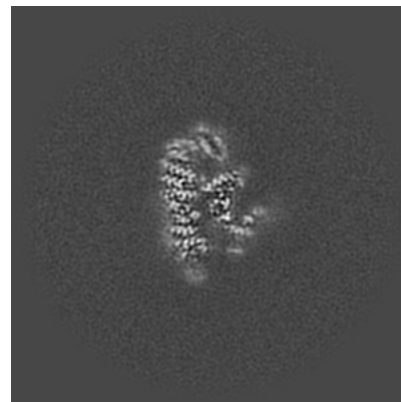
6.3.1 Primary map



X Index: 134



Y Index: 139

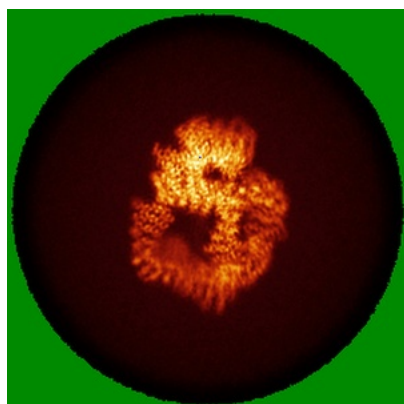


Z Index: 134

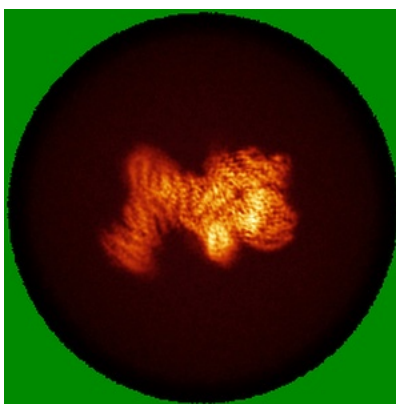
The images above show the largest variance slices of the map in three orthogonal directions.

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

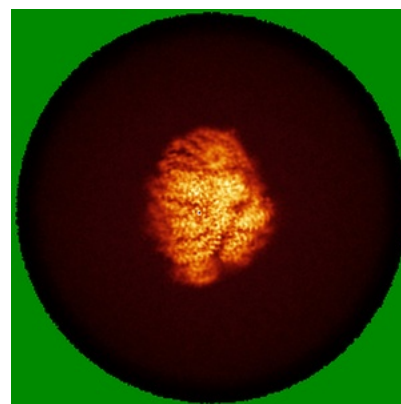
6.4.1 Primary map



X



Y

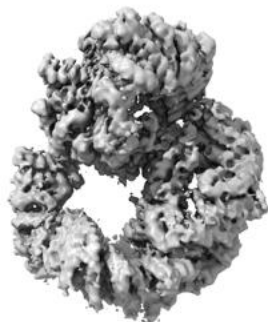


Z

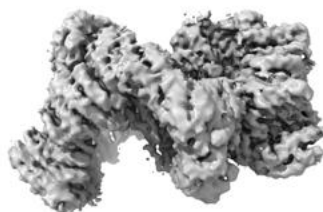
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.2. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

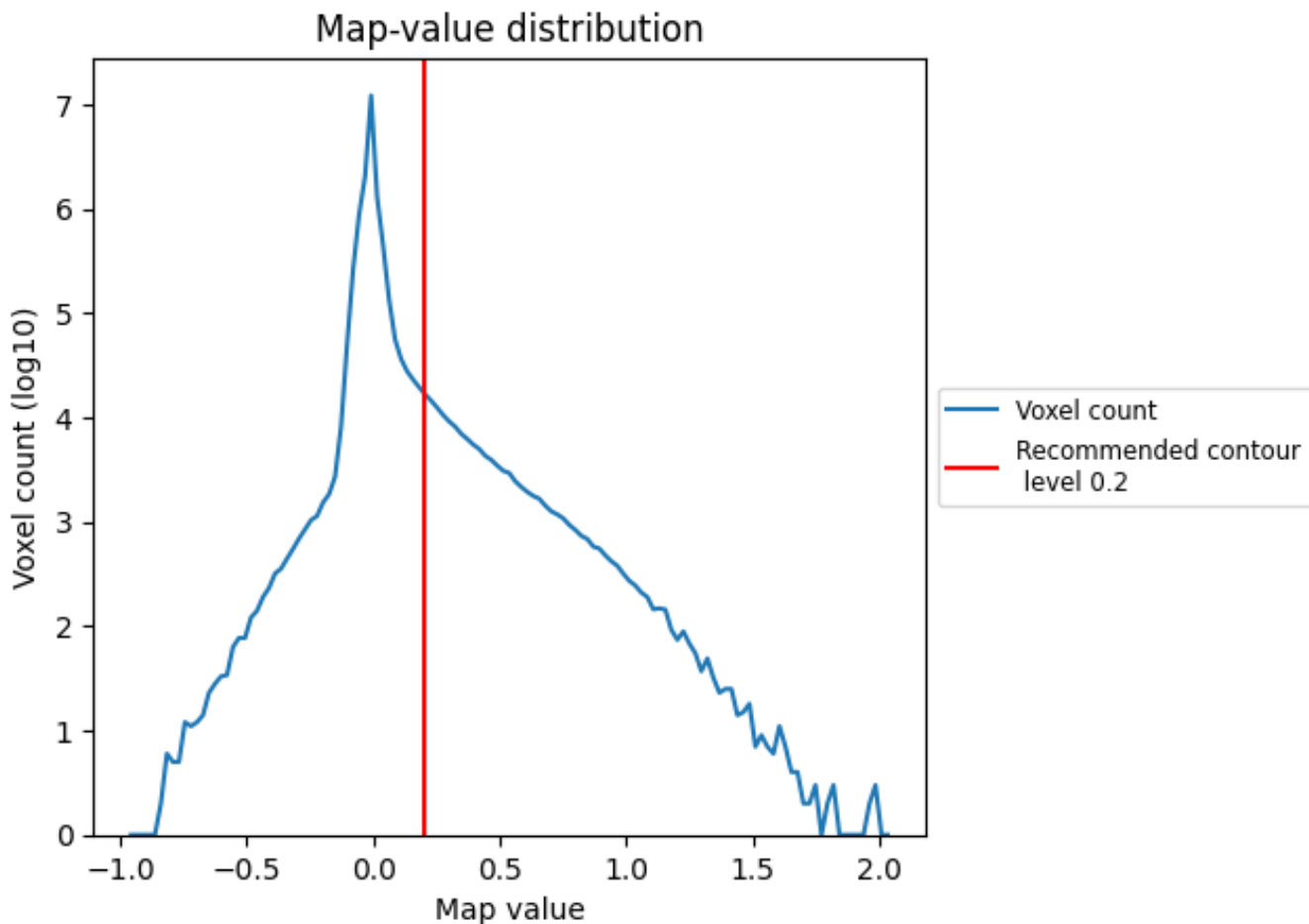
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

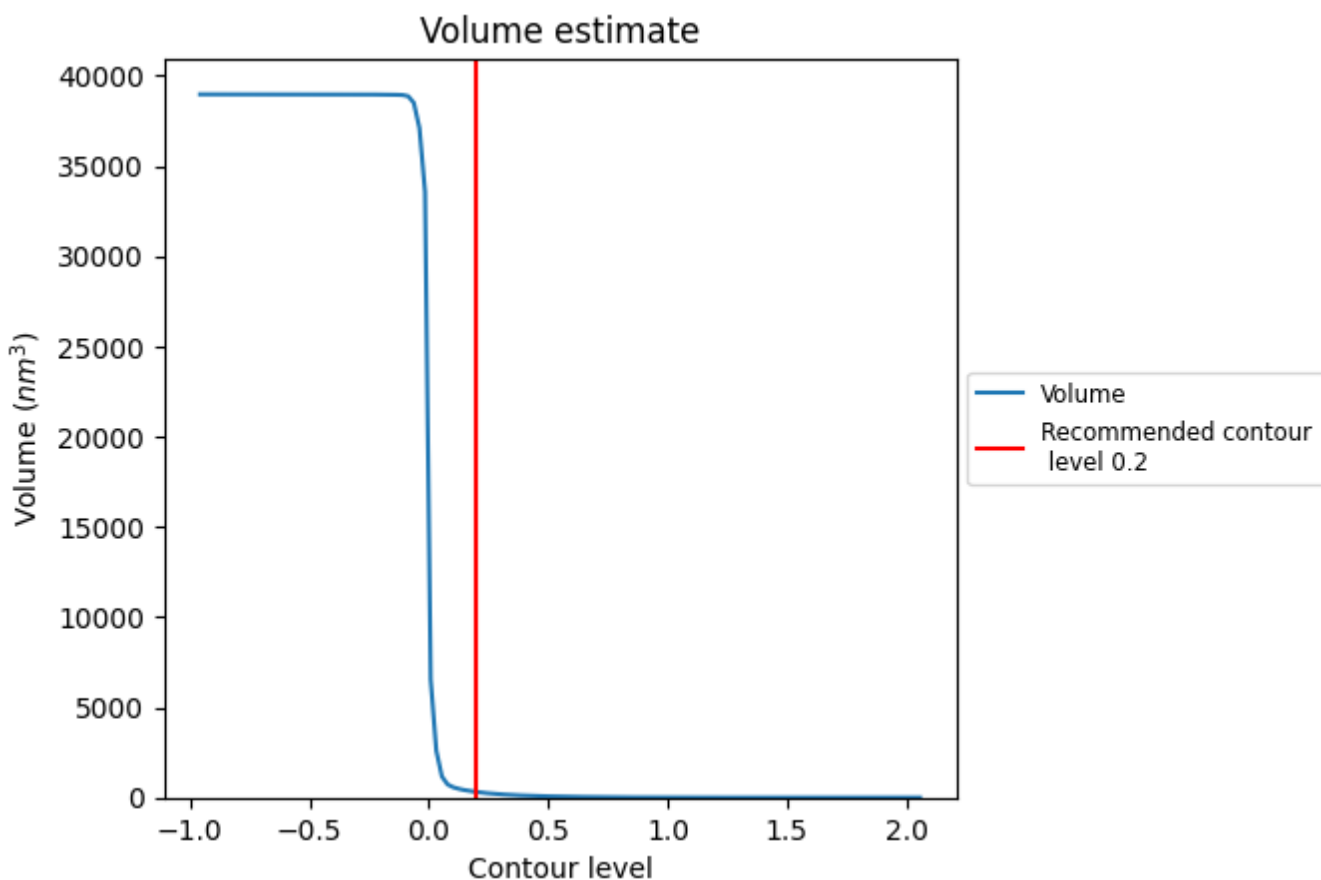
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

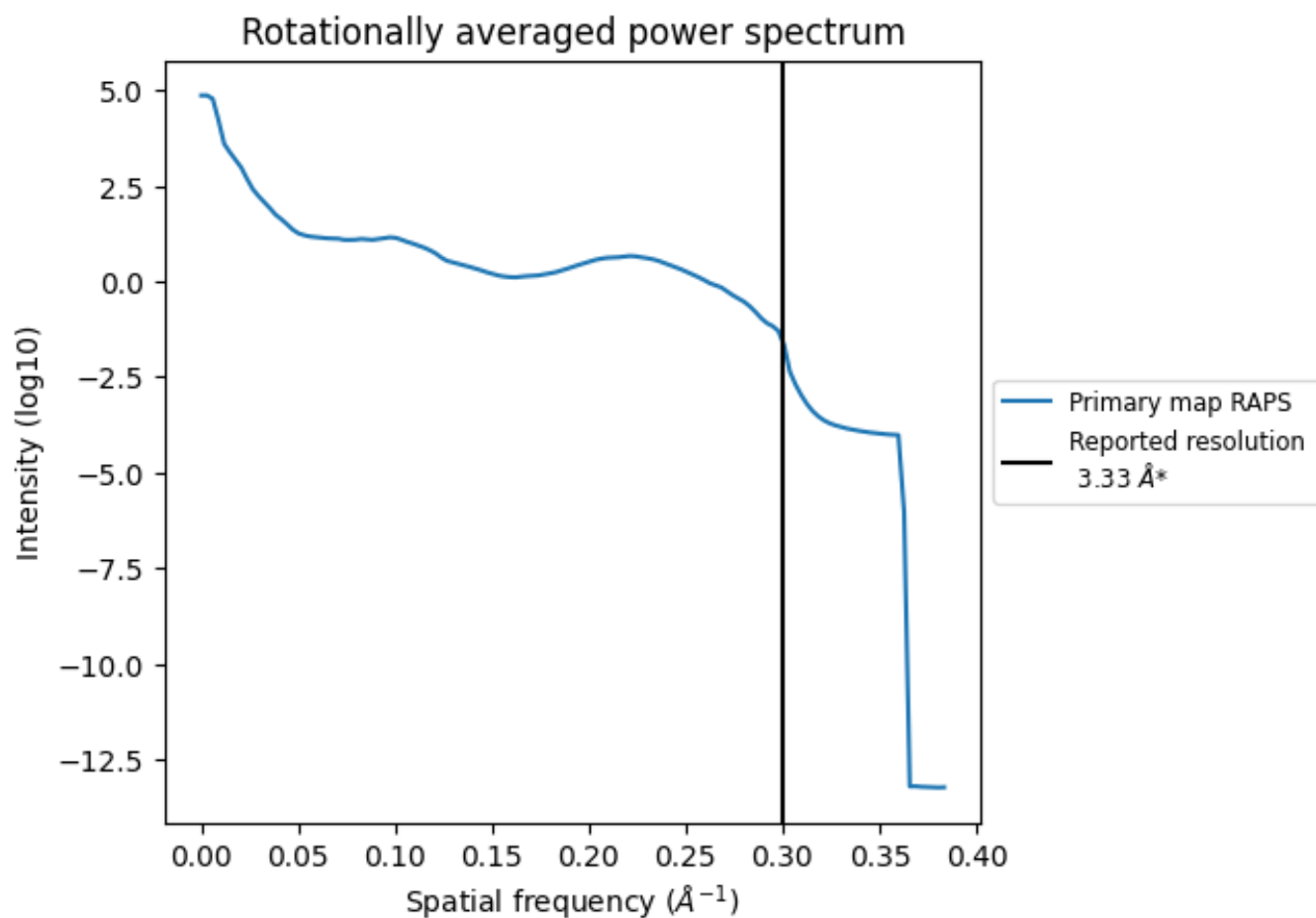
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 310 nm³; this corresponds to an approximate mass of 280 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 0.300 Å⁻¹

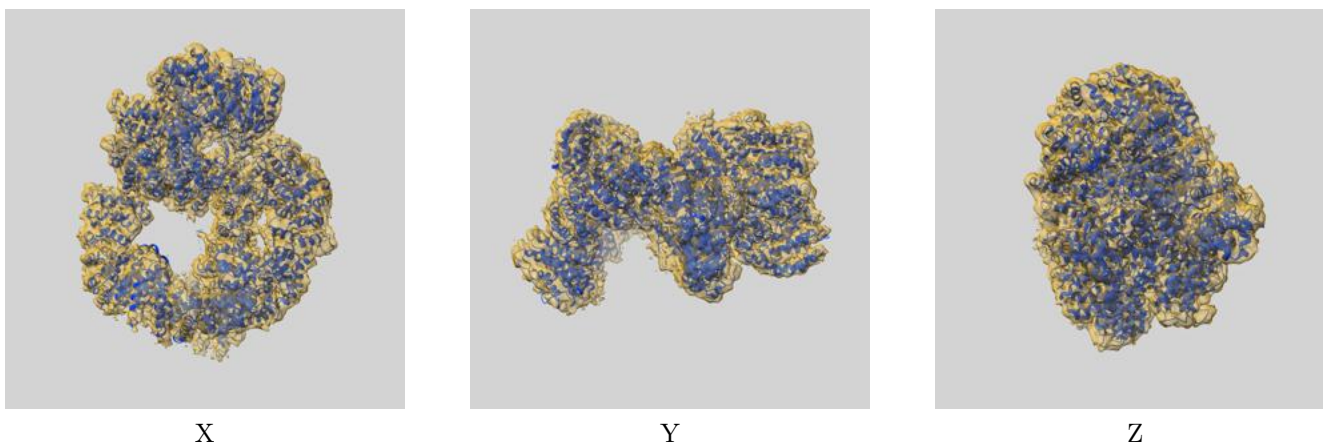
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

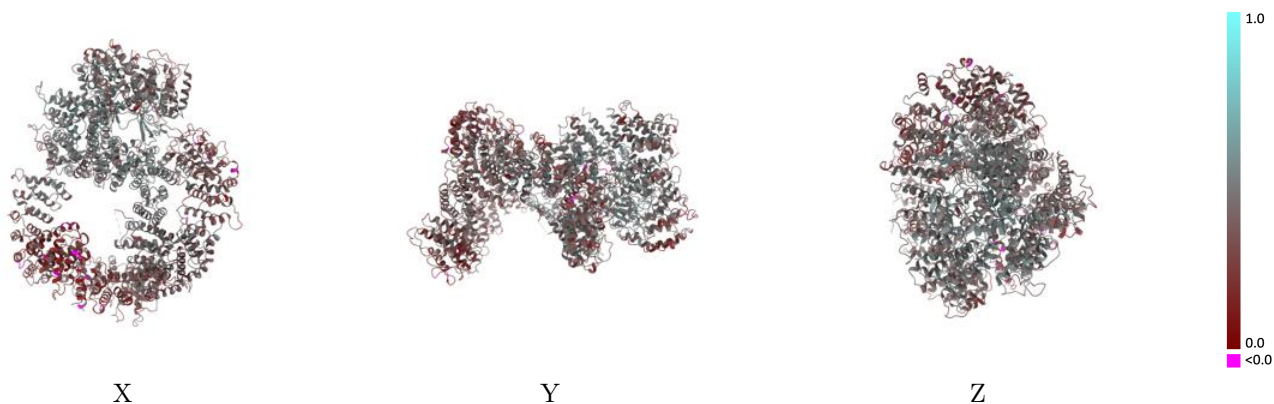
This section contains information regarding the fit between EMDB map EMD-13062 and PDB model 7OTM. Per-residue inclusion information can be found in section [3](#) on page [4](#).

9.1 Map-model overlay [i](#)



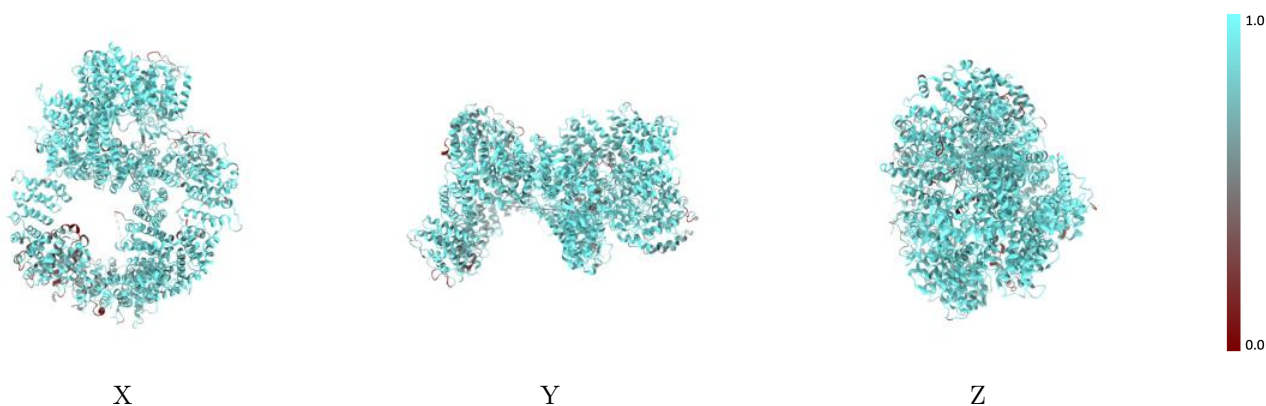
The images above show the 3D surface view of the map at the recommended contour level 0.2 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



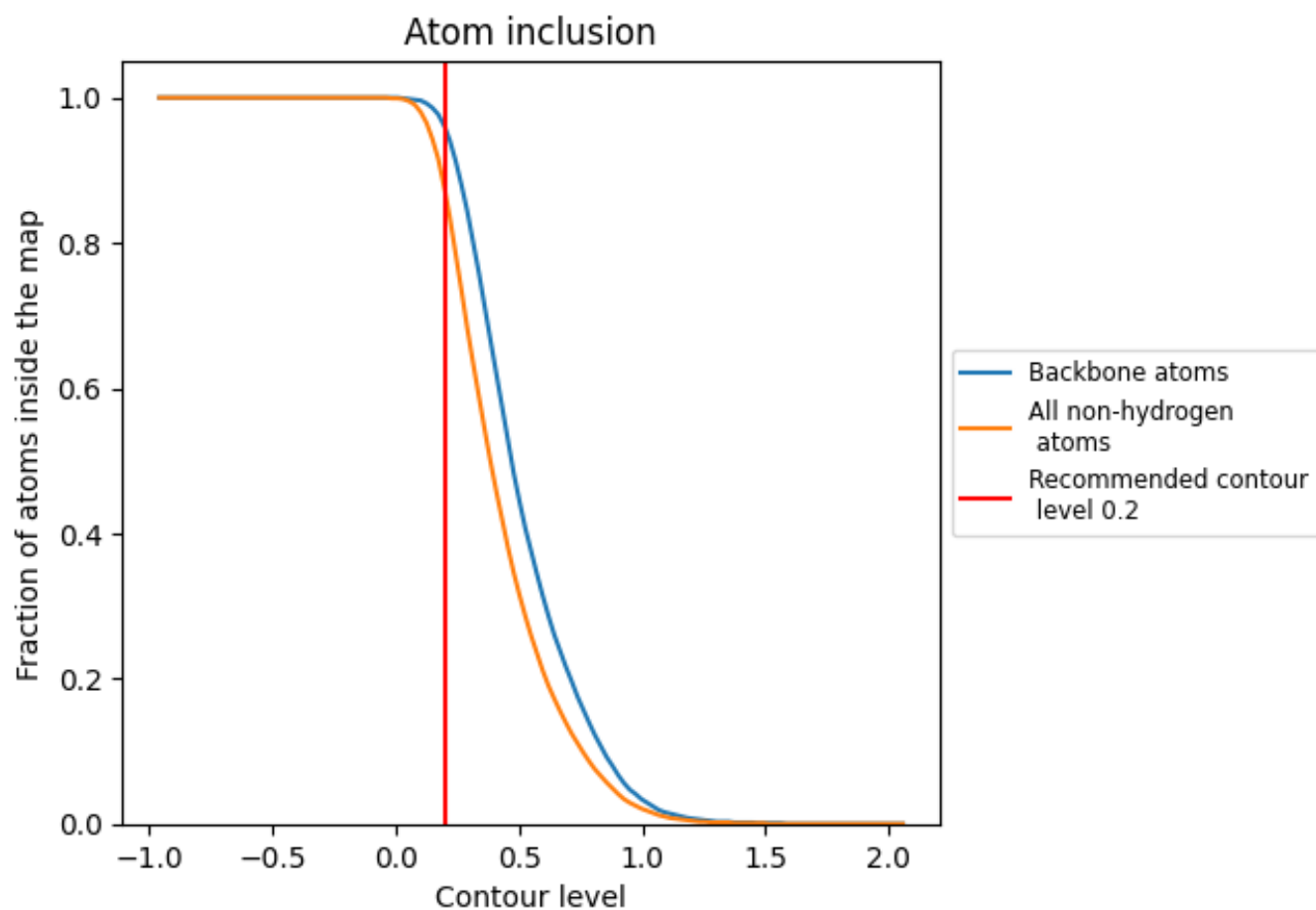
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.2).





9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 87% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8710	 0.3940
A	 0.8710	 0.3940

