



wwPDB EM Validation Summary Report ⓘ

Jul 14, 2024 – 01:15 pm BST

PDB ID : 7Z87
EMDB ID : EMD-14545
Title : DNA-PK in the active state
Authors : Liang, S.; Blundell, T.L.
Deposited on : 2022-03-16
Resolution : 2.91 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

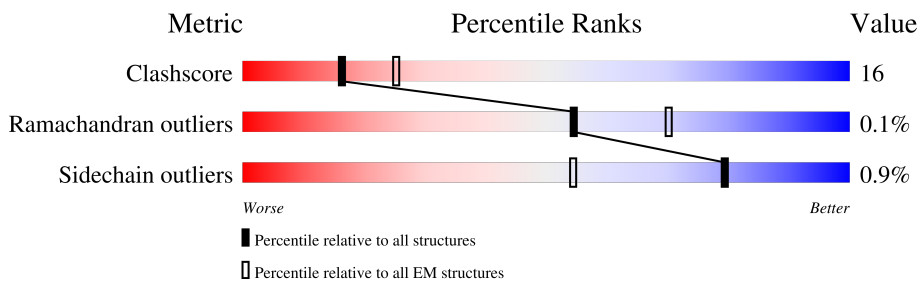
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.91 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	4128	
2	B	609	
3	C	732	
4	D	26	
5	E	26	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 39708 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.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3689	29194	18729	4950	5323	192	1	0

- Molecule 2 is a protein called X-ray repair cross-complementing protein 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	490	3953	2533	669	733	18	2	0

- Molecule 3 is a protein called X-ray repair cross-complementing protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	661	5267	3370	879	993	25	0	0

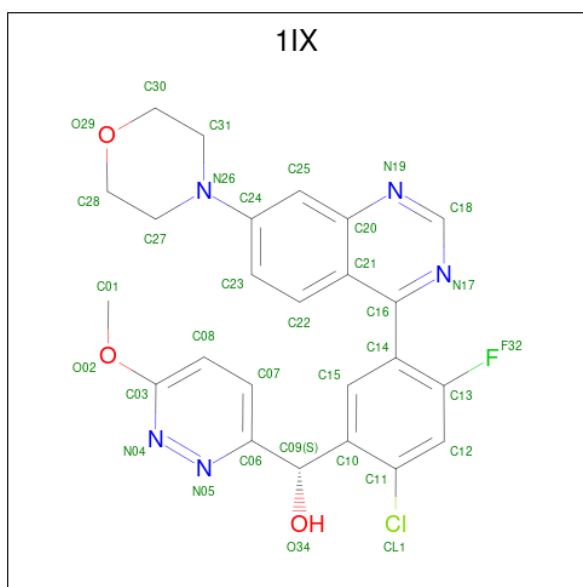
- Molecule 4 is a DNA chain called DNA (26-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	D	26	526	250	92	158	26	0	0

- Molecule 5 is a DNA chain called DNA (26-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	E	26	540	254	106	154	26	0	0

- Molecule 6 is ({S})-[2-chloranyl-4-fluoranyl-5-(7-morpholin-4-ylquinazolin-4-yl)phenyl]-(6-methoxypyridazin-3-yl)methanol (three-letter code: 1IX) (formula: C₂₄H₂₁ClFN₅O₃) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	Cl	F	N		O
6	A	1	34	24	1	1	5	3	0

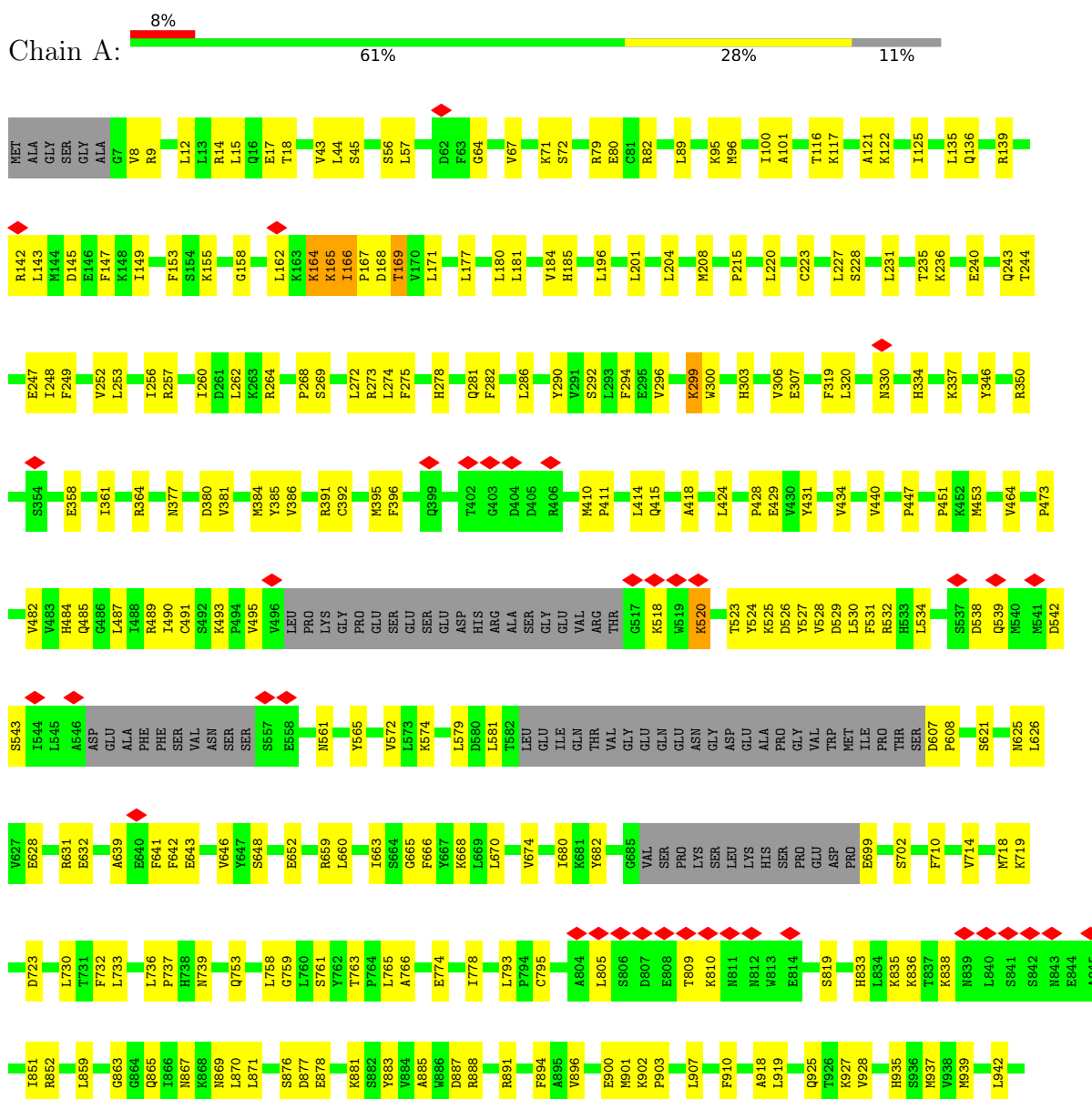
- Molecule 7 is water.

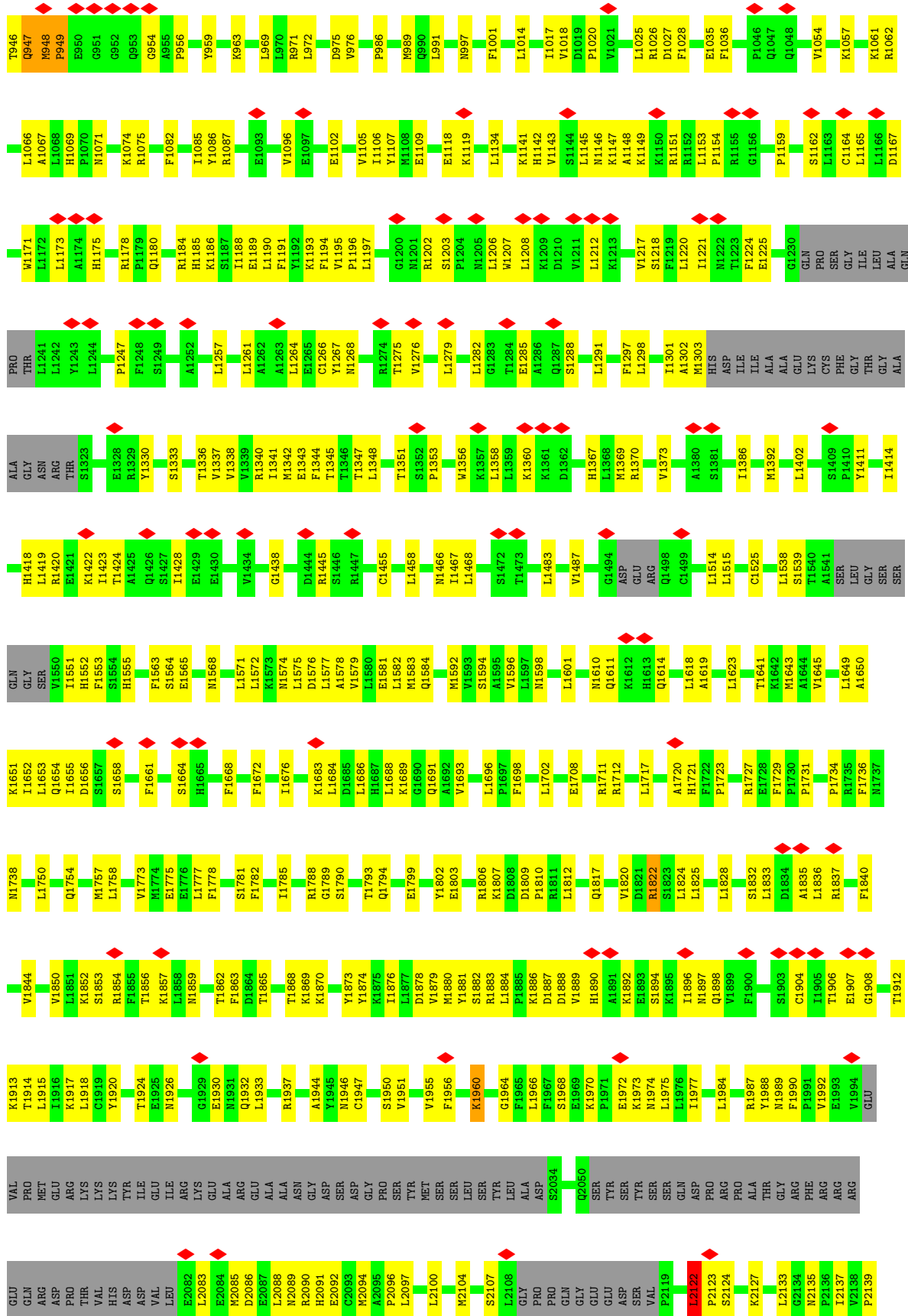
Mol	Chain	Residues	Atoms		AltConf
7	A	154	Total	O	0
			154	154	
7	B	25	Total	O	0
			25	25	
7	C	9	Total	O	0
			9	9	
7	D	4	Total	O	0
			4	4	
7	E	2	Total	O	0
			2	2	

3 Residue-property plots [i](#)

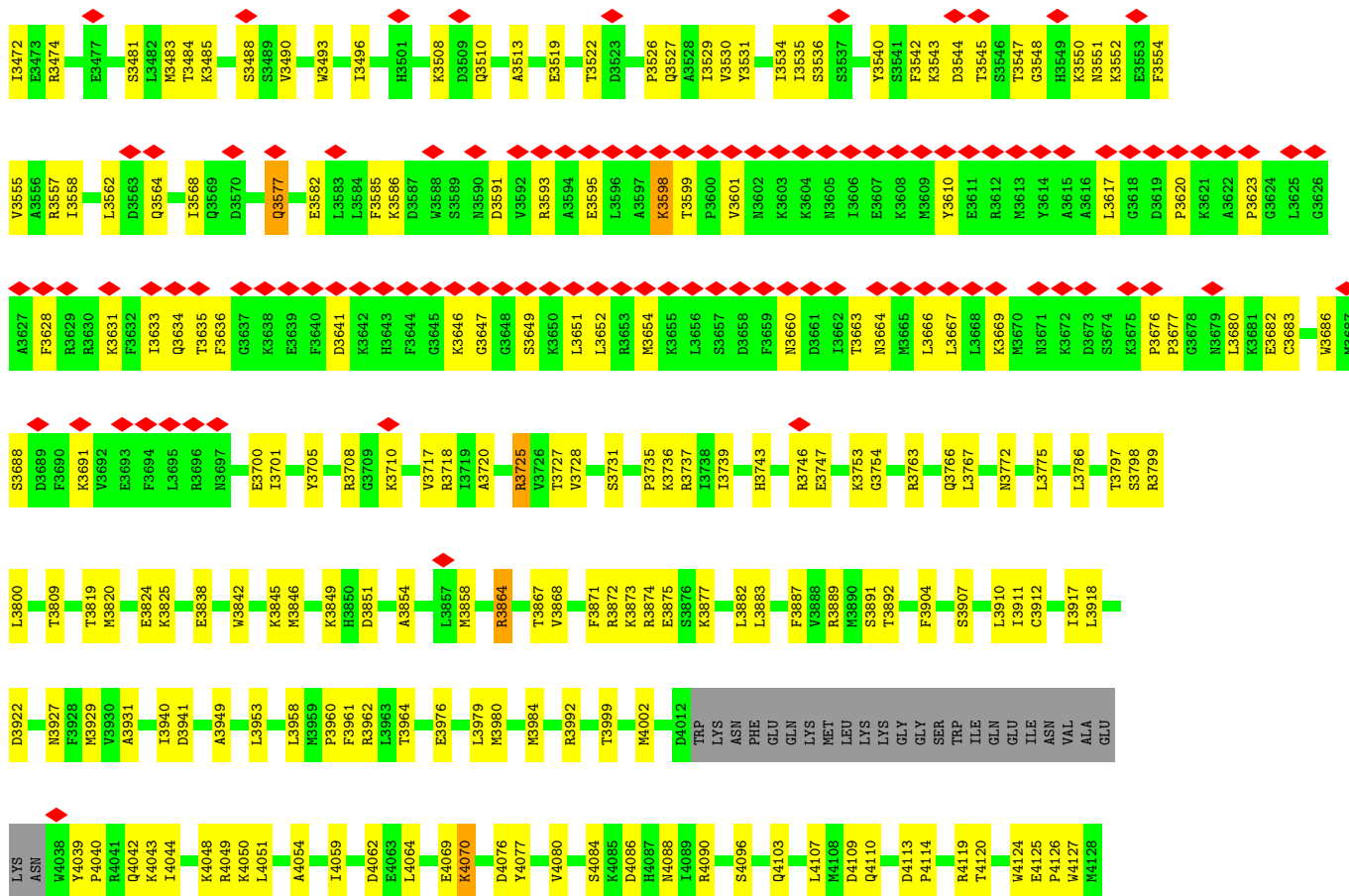
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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

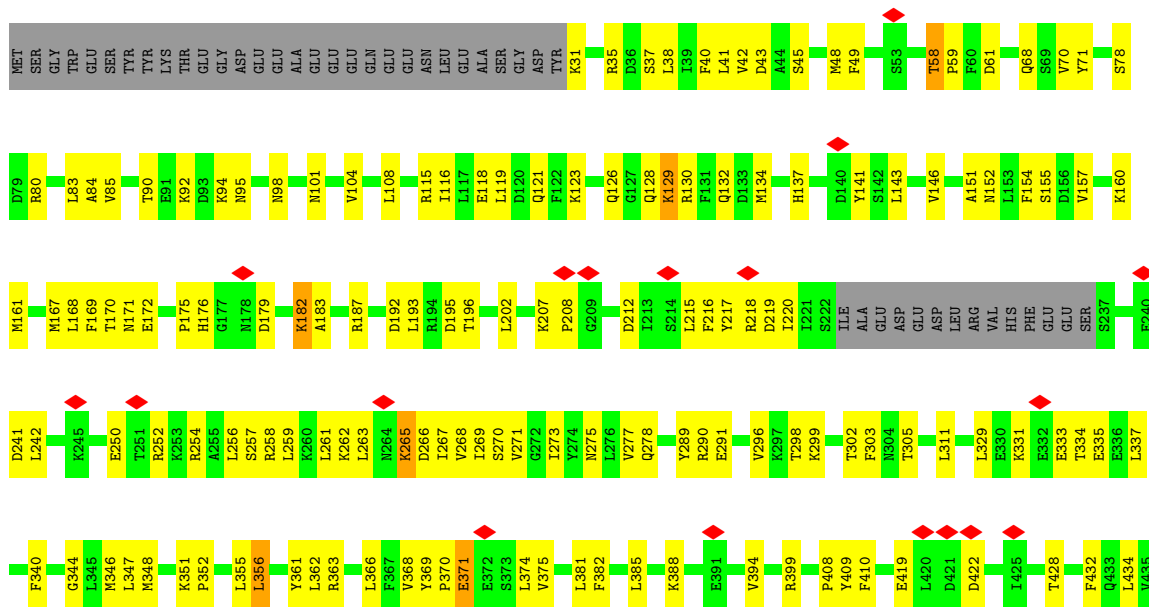


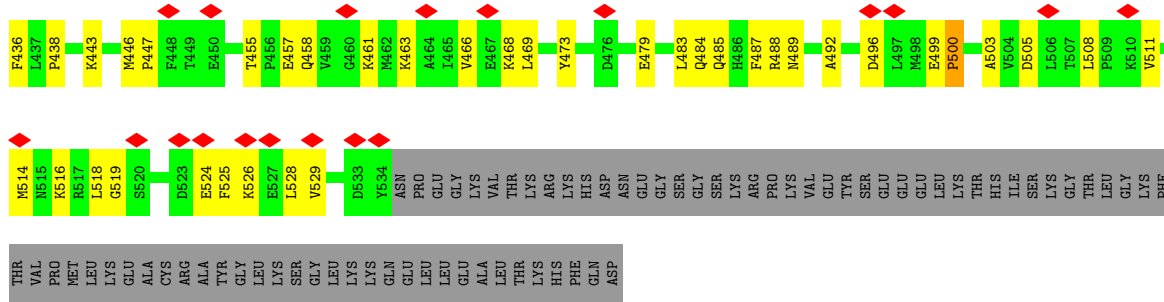


L2140	K2948	V2367	F2461	L2857	SER	ARG	A2744	F2851	T2949	S3083	ASN	T3299	Q3390
N2141	D2247	F2371	H2464	M2560	LEU	SER	R2745	P2852	MET	Q3084	SER	V3500	E3394
R2142	C2248	P2372	P2465	N2560	ALA	ARG	K2746	P2853	ASN	Q3093	VAL	L3307	G3394
L2144	I2251	P2373	E2471	E2564	TRP	GLN	V2747	V2855	VAL	D3097	ASP	M3310	ALA
L2146	Y2252	P2373	E2471	M2565	PRO	LEU	A2749	S2856	L2957	I3103	GLN	M3311	GLN
V2150	R2254	R2377	N2475	M2568	VAL	ALA	Q2750	C2857	R2962	I3117	ASP	I3117	PRO
E2154	L2255	F2378	I2476	Y2572	ALA	PRO	K2751	I2858	S2870	D3118	GLY	D3118	TRP
R2158	I2256	M2379	H2481	P2574	GLN	LEU	K2752	Q2859	L2871	E2974	ASP	E2974	TRP
K2162	I2256	M2380	Y2484	M2575	ILE	SER	R2753	Q2859	D2872	D2973	ASP	D2973	TRP
D2264	I2256	N2266	R2485	P2575	ALA	ARG	K2755	K2755	A2875	L3119	ARG	E2974	GLY
P2265	N2266	L2386	D2486	H2579	THR	PRO	E2756	E2756	Q2885	L3120	MET	L3329	PRO
N2266	N2266	L2386	P2487	P2580	GLN	ASP	L2757	L2757	W2981	L3121	GLU	L3329	PRO
M2270	M2270	V2392	E2488	LEU	GLN	PHE	I2757	Q2886	W2981	Q3123	VAL	Y3334	ALA
L2277	L2277	L2393	S2489	SER	GLN	GLN	K2758	P2887	T2987	R3124	GLN	R3335	ALA
V2280	V2280	K2394	E2490	LEU	HIS	LYS	S2759	V2888	T2987	R3125	GLN	I3336	ALA
M2281	M2281	T2395	T2491	SER	ASP	LYS	E2760	W2888	K2991	L3126	GLN	M3339	ALA
A2282	A2282	C2397	L2492	LEU	PHE	ARG	L2761	R2899	W2994	T3136	GLU	A3340	ALA
N2283	N2283	L2398	N2493	LEU	THR	LEU	K2762	LEU	W2994	E3137	D3226	A3340	ALA
D2284	D2284	E2399	D2494	THR	LEU	LEU	M2763	LEU	D3000	E3140	I3227	I3327	ALA
L2285	L2285	W2400	S2495	TYR	THR	PRO	K2764	ALA	D3007	E3140	M3280	M3280	ALA
P2286	P2286	V2401	I2498	THR	ALA	ALA	Q2765	GLU	E3007	I3145	M3256	M3256	ALA
R2287	R2287	L2402	I2498	ILE	GLY	GLU	D2766	LEU	W3008	N3150	M3256	M3256	ALA
H2183	H2183	C2403	K2500	ASP	GLY	LEU	A2767	ARG	E3022	L3151	L3259	L3259	ALA
Y2288	Y2288	V2405	K2500	SER	ARG	ALA	Q2768	LYS	T3016	L3151	K3260	K3260	ALA
W2185	W2185	V2405	V2505	ASP	SER	LYS	Q2768	ARG	I3019	Q3154	H3263	H3263	ALA
V2186	V2186	M2408	L2506	TRP	SER	VAL	V2769	VAL	D3020	Q3154	H3263	H3263	ALA
V2190	V2190	F2409	L2506	PHE	THR	VAL	W2769	VAL	S3021	N3162	K3267	K3267	ALA
L2193	L2193	L2411	N2514	THR	THR	LYS	LEU	GLY	E3022	N3162	K3267	K3267	ALA
L2194	L2194	Y2412	L2517	SER	ALA	ALA	T2769	LYS	P3025	M3166	R3269	R3269	ALA
S2195	S2195	S2417	Q2518	VAL	GLY	ARG	Q2769	ARG	D3026	R3167	B3270	B3270	ALA
W2196	W2196	S2417	Q2518	THR	THR	LEU	V2769	LEU	L3027	I3168	D3271	D3271	ALA
T2197	T2197	F2420	I2521	LEU	SER	LEU	W2769	LEU	L3027	P3169	W3272	W3272	ALA
Q2198	Q2198	N2306	N2521	PRO	THR	HIS	A2770	P2917	N3028	D3170	D3170	D3170	ALA
L2199	L2199	F2309	R2523	ASP	THR	ARG	D2771	P2917	K3029	D3174	D3174	D3174	ALA
A2200	A2200	W2310	F2524	MET	PRO	LEU	D2771	D2919	L3030	M3175	M3175	M3175	ALA
T2201	T2201	V2310	F2524	PHE	PRO	LEU	D2771	W2920	W3031	M3177	M3177	M3177	ALA
P2202	P2202	Y2312	H2527	VAL	VAL	VAL	D2782	R2922	L3041	M3177	M3177	M3177	ALA
V2205	V2205	R2428	R2530	THR	THR	ARG	D2782	R2922	L3041	I3182	I3182	I3182	ALA
D2208	D2208	Q2432	R2530	ALA	THR	PHE	I2785	E2925	K3048	I3182	I3182	I3182	ALA
L2216	L2216	I2439	R2533	GLN	PRO	GLN	S2788	L2929	K3048	R3186	R3186	R3186	ALA
H2225	H2225	Y2440	S2533	THR	SER	SER	S2788	Y2930	L3051	R3186	R3186	R3186	ALA
P2226	P2226	I2336	D2536	THR	SER	SER	S2788	R2931	L3052	E3195	E3195	E3195	ALA
P2227	P2227	M2443	D2537	LEU	ASP	ASP	T2792	I2932	E3056	K3196	K3196	K3196	ALA
L2241	L2241	R2452	R2539	THR	LEU	LEU	R2800	I2933	A3057	L3197	L3197	L3197	ALA
C2244	C2244	R2452	L2540	ARG	THR	THR	K2806	V2938	D3058	T3198	T3198	T3198	ALA
W2245	W2245	W2459	L2540	THR	PHE	ALA	E2819	R2940	L3062	P3199	P3199	P3199	ALA
C2363	C2363	F2460	I2550	GLY	HIS	HIS	I2832	T2942	K3075	LEU	LEU	LEU	ALA
			E2551	GLY	LYS	LYS	L2837	P2943	Y3082	GLU	GLU	GLU	ALA
							L2844			ASP	ASP	ASP	ALA
							T2847						ALA

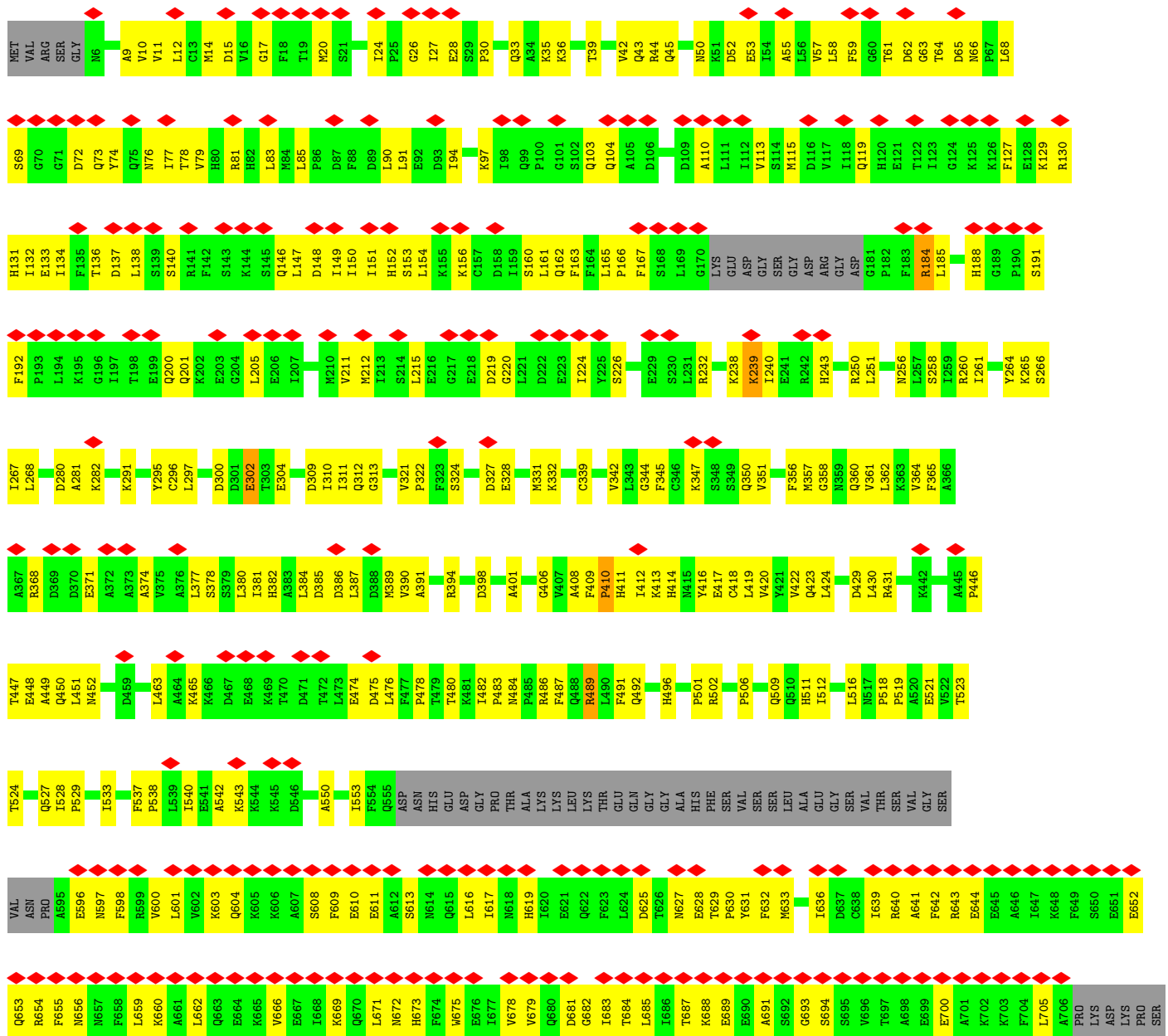


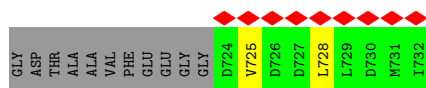
• Molecule 2: X-ray repair cross-complementing protein 6





• Molecule 3: X-ray repair cross-complementing protein 5





- Molecule 4: DNA (26-MER)



- Molecule 5: DNA (26-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	275300	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 ($e^-/\text{\AA}^2$)	47.22	Depositor
Minimum defocus (nm)	1100	Depositor
Maximum defocus (nm)	2300	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	3.034	Depositor
Minimum map value	-2.002	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.037	Depositor
Recommended contour level	0.1	Depositor
Map size (\AA)	456.4, 456.4, 456.4	wwPDB
Map dimensions	350, 350, 350	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	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: 1IX

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	0.34	0/29781	0.49	4/40270 (0.0%)
2	B	0.37	0/4036	0.56	2/5438 (0.0%)
3	C	0.30	0/5368	0.49	0/7240
4	D	0.80	0/587	0.93	0/902
5	E	0.77	0/607	0.86	0/936
All	All	0.36	0/40379	0.52	6/54786 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3

There are no bond length outliers.

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	356	LEU	CA-CB-CG	5.75	128.54	115.30
1	A	2122	LEU	CA-CB-CG	5.24	127.35	115.30
1	A	3151	LEU	CA-CB-CG	5.19	127.23	115.30
1	A	169	THR	N-CA-C	-5.10	97.24	111.00
1	A	3025	PRO	CA-N-CD	-5.05	104.43	111.50

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1020	PRO	Peptide
1	A	1960	LYS	Peptide
1	A	2122	LEU	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	29194	0	29449	849	0
2	B	3953	0	4031	165	0
3	C	5267	0	5261	233	0
4	D	526	0	293	24	0
5	E	540	0	291	9	0
6	A	34	0	0	1	0
7	A	154	0	0	17	0
7	B	25	0	0	3	0
7	C	9	0	0	0	0
7	D	4	0	0	1	0
7	E	2	0	0	0	0
All	All	39708	0	39325	1226	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 1226 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:169:THR:HG23	4:D:12:DT:OP1	1.42	1.18
3:C:409:PHE:HB2	3:C:420:VAL:HG13	1.31	1.07
3:C:409:PHE:HB2	3:C:420:VAL:CG1	1.85	1.07
2:B:371:GLU:OE1	2:B:374:LEU:HD13	1.56	1.05
3:C:136:THR:HG22	3:C:138:LEU:H	1.32	0.92

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	3652/4128 (88%)	3280 (90%)	368 (10%)	4 (0%)	51	81
2	B	488/609 (80%)	423 (87%)	65 (13%)	0	100	100
3	C	653/732 (89%)	580 (89%)	71 (11%)	2 (0%)	41	70
All	All	4793/5469 (88%)	4283 (89%)	504 (10%)	6 (0%)	54	81

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2548	PRO
1	A	3083	SER
1	A	949	PRO
1	A	3058	ASP
3	C	322	PRO

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	3211/3671 (88%)	3189 (99%)	22 (1%)	84	95
2	B	443/548 (81%)	435 (98%)	8 (2%)	59	83
3	C	583/649 (90%)	576 (99%)	7 (1%)	71	90
All	All	4237/4868 (87%)	4200 (99%)	37 (1%)	79	92

5 of 37 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	371	GLU
3	C	411	HIS
2	B	516	LYS
3	C	239	LYS
1	A	2427	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 19 such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3951	GLN
3	C	119	GLN
3	C	452	ASN
2	B	275	ASN
1	A	1890	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
6	1IX	A	4201	-	37,38,38	2.23	11 (29%)	50,54,54	1.99	19 (38%)

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
6	1IX	A	4201	-	-	2/18/26/26	0/5/5/5

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	4201	1IX	C14-C16	6.15	1.56	1.49
6	A	4201	1IX	C12-C13	5.48	1.47	1.37
6	A	4201	1IX	C11-CL1	4.34	1.83	1.73
6	A	4201	1IX	C21-C20	-3.72	1.36	1.42
6	A	4201	1IX	C24-N26	3.22	1.47	1.38

The worst 5 of 19 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	4201	1IX	C21-C16-N17	-5.09	119.69	123.04
6	A	4201	1IX	C18-N19-C20	4.26	121.27	115.40
6	A	4201	1IX	C21-C20-N19	-4.13	118.43	122.83
6	A	4201	1IX	N19-C18-N17	-3.97	122.48	128.68
6	A	4201	1IX	C15-C10-C11	2.96	120.03	117.12

There are no chirality outliers.

All (2) torsion outliers are listed below:

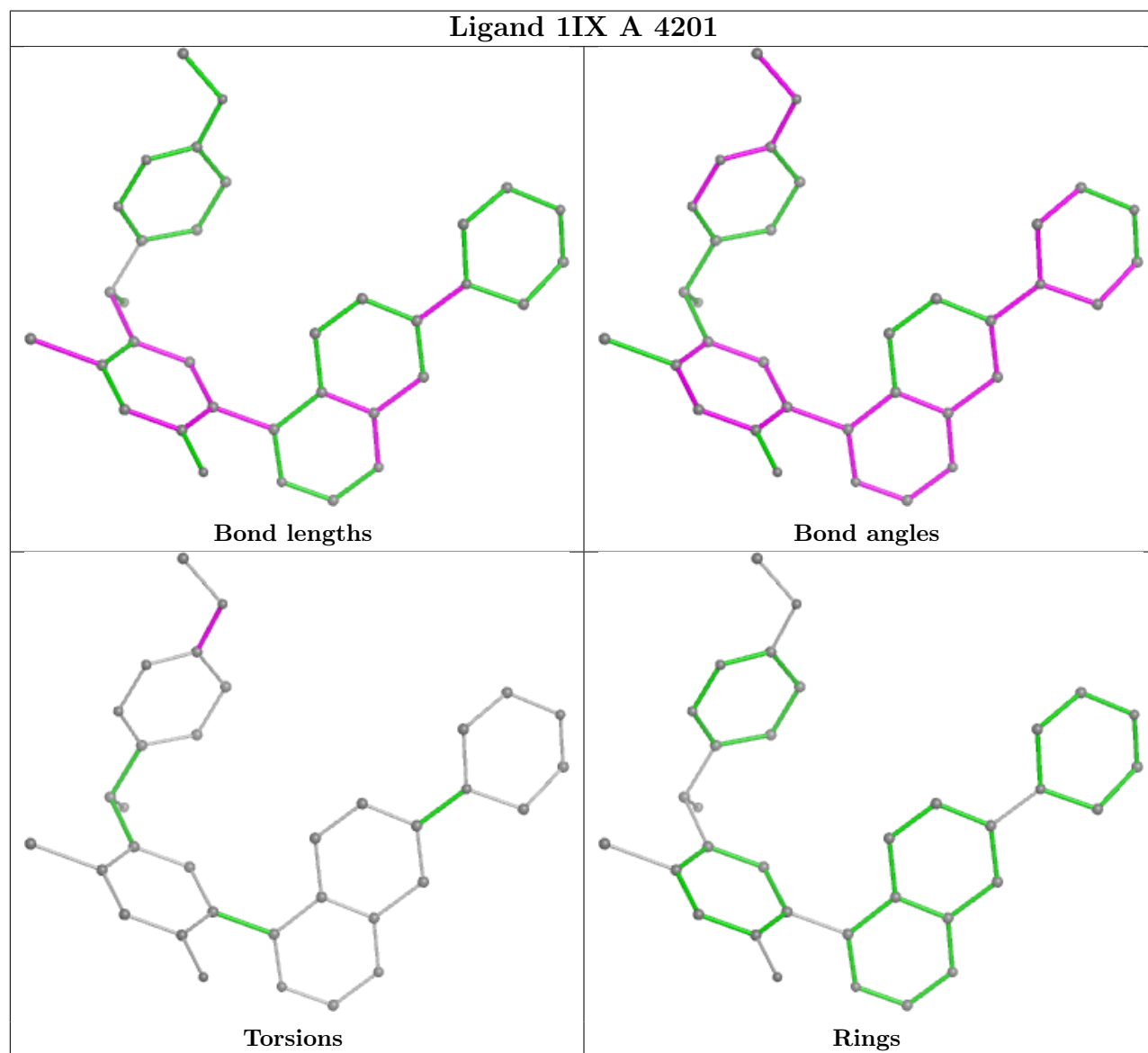
Mol	Chain	Res	Type	Atoms
6	A	4201	1IX	N04-C03-O02-C01
6	A	4201	1IX	C08-C03-O02-C01

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	4201	1IX	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 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 [i](#)

There are no chain breaks in this entry.

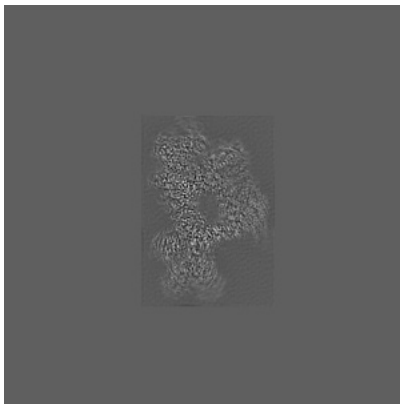
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14545. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

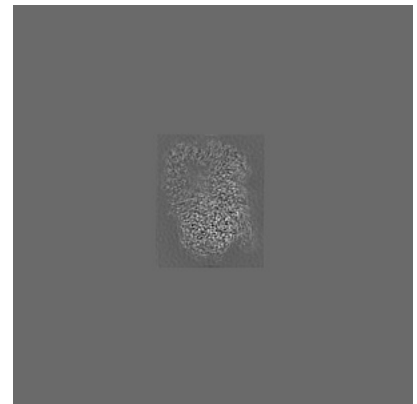
6.1.1 Primary map



X

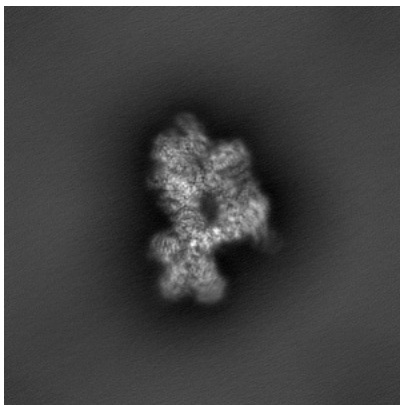


Y

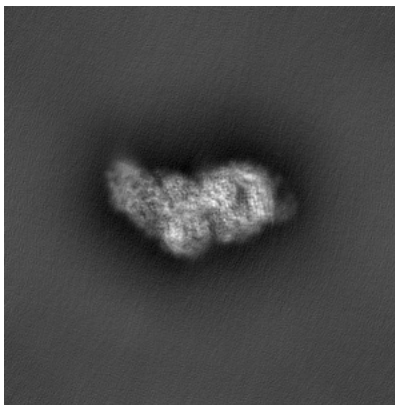


Z

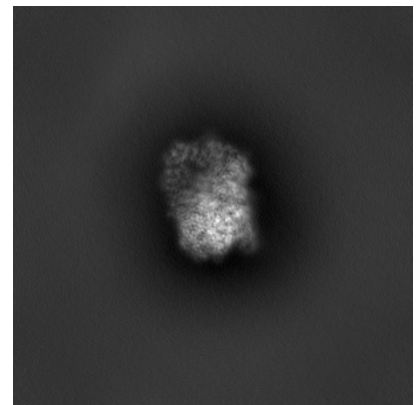
6.1.2 Raw map



X



Y

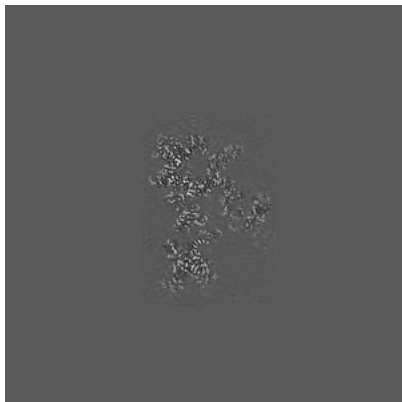


Z

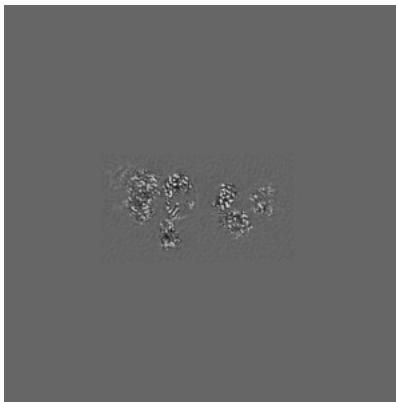
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 175

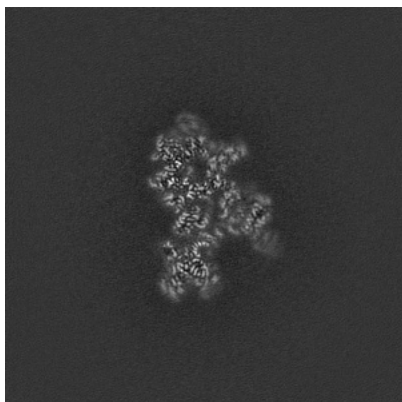


Y Index: 175

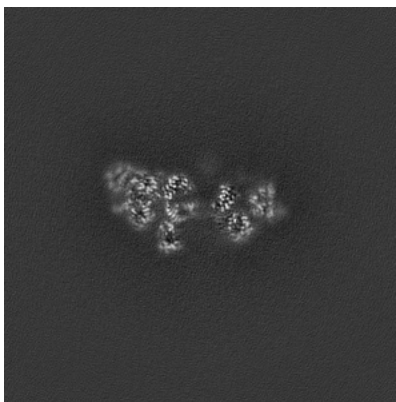


Z Index: 175

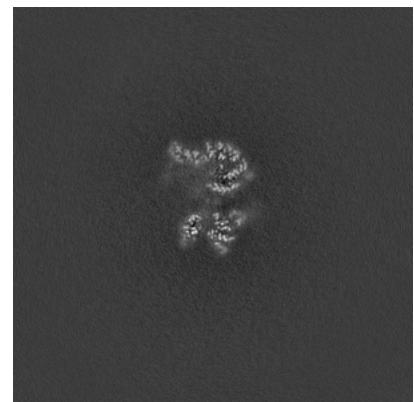
6.2.2 Raw map



X Index: 175



Y Index: 175

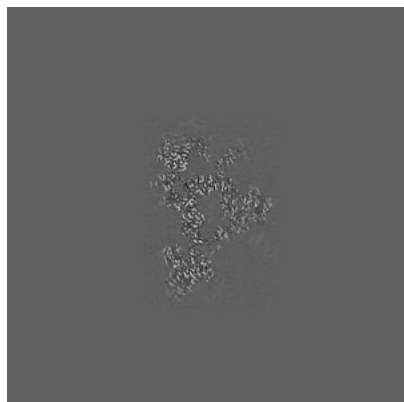


Z Index: 175

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

6.3 Largest variance slices [i](#)

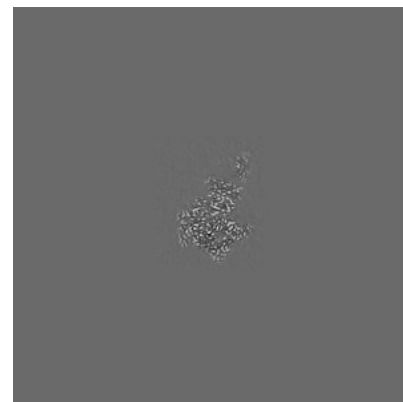
6.3.1 Primary map



X Index: 180

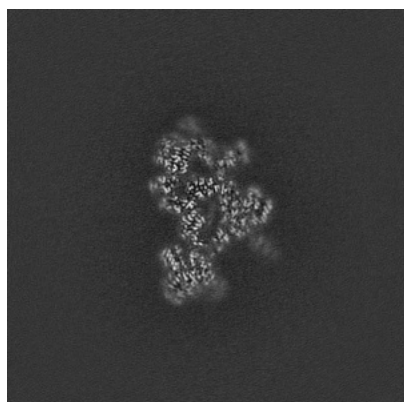


Y Index: 156

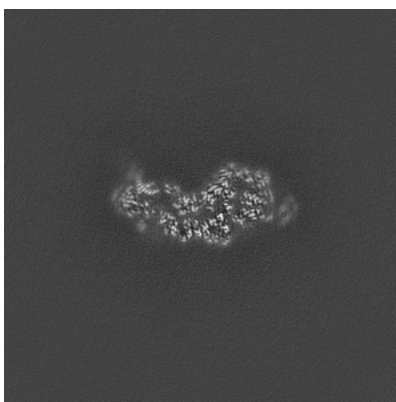


Z Index: 194

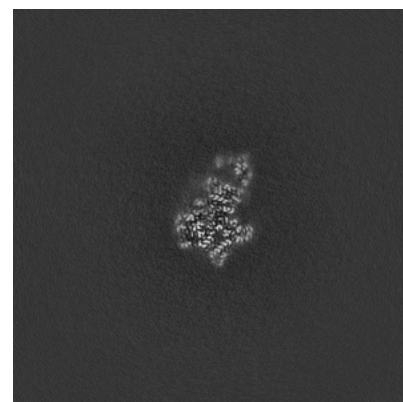
6.3.2 Raw map



X Index: 180



Y Index: 156

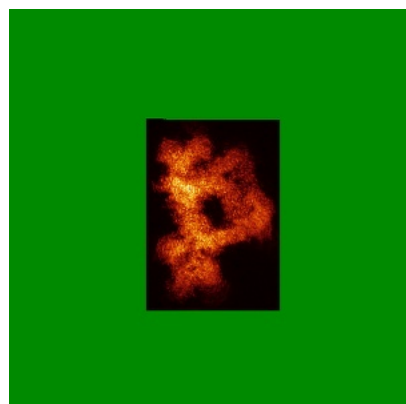


Z Index: 192

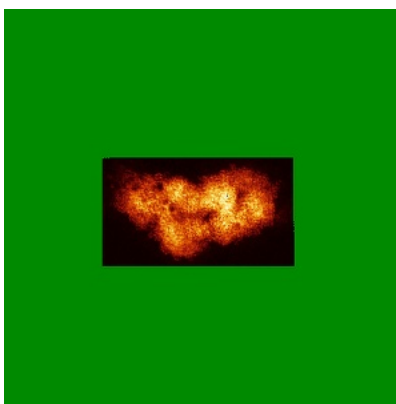
The images above show the largest variance slices of the map in three orthogonal directions.

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

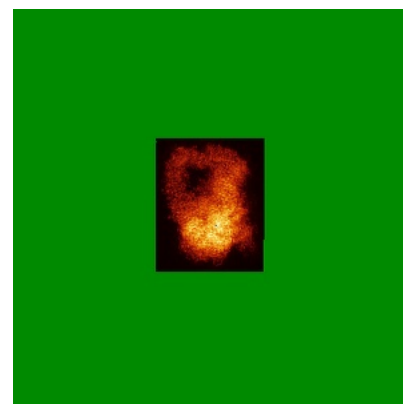
6.4.1 Primary map



X

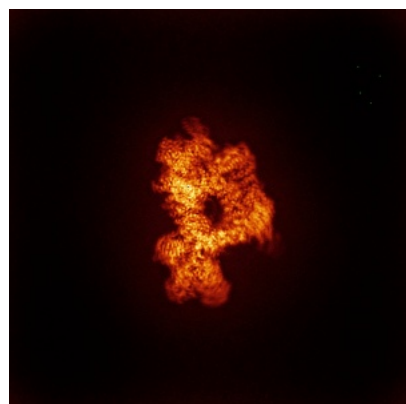


Y

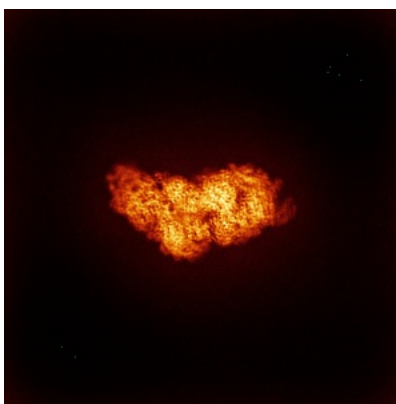


Z

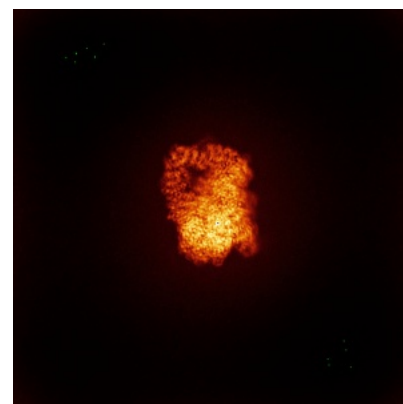
6.4.2 Raw map



X



Y

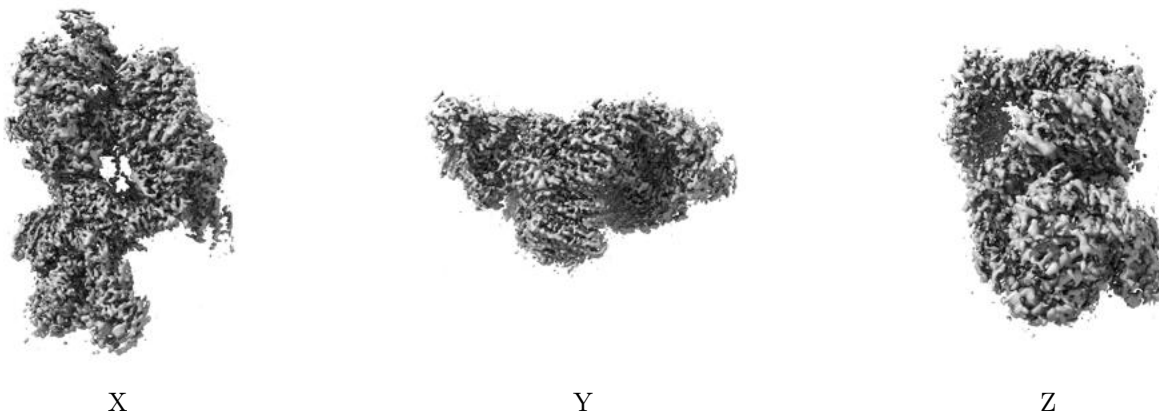


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.1. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

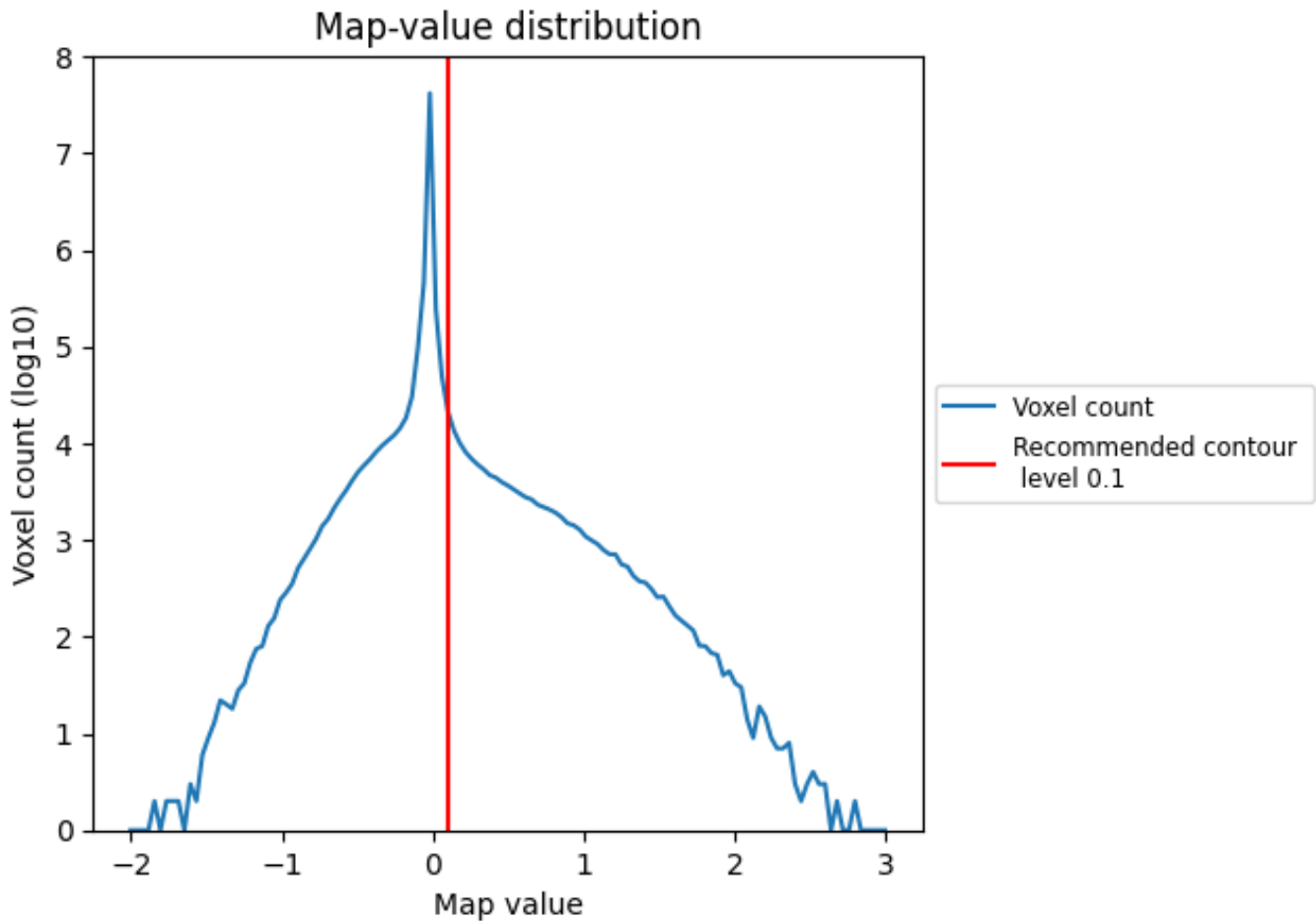
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

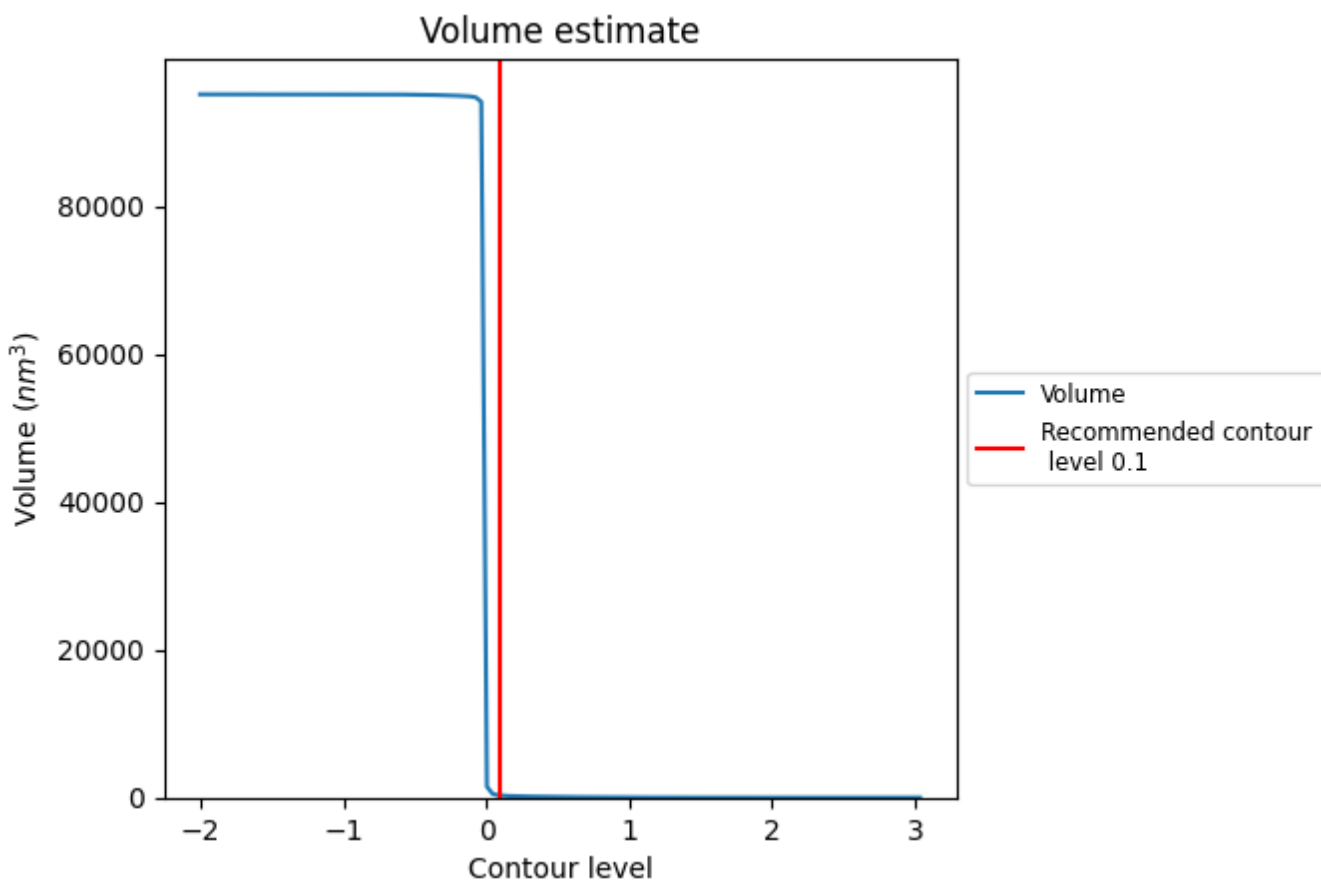
This section contains the results of statistical analysis of the map.

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.

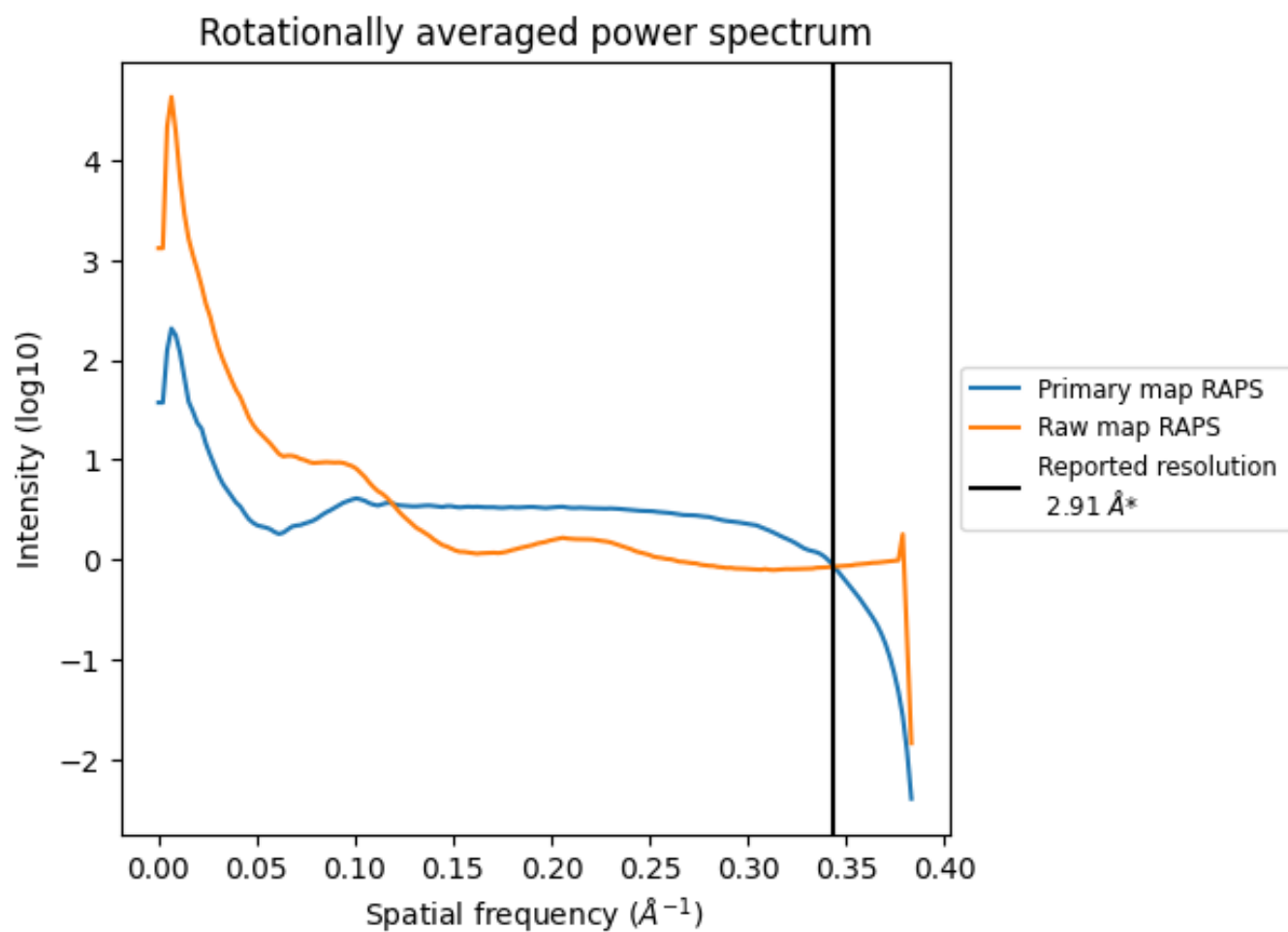
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 280 nm³; this corresponds to an approximate mass of 253 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](#)

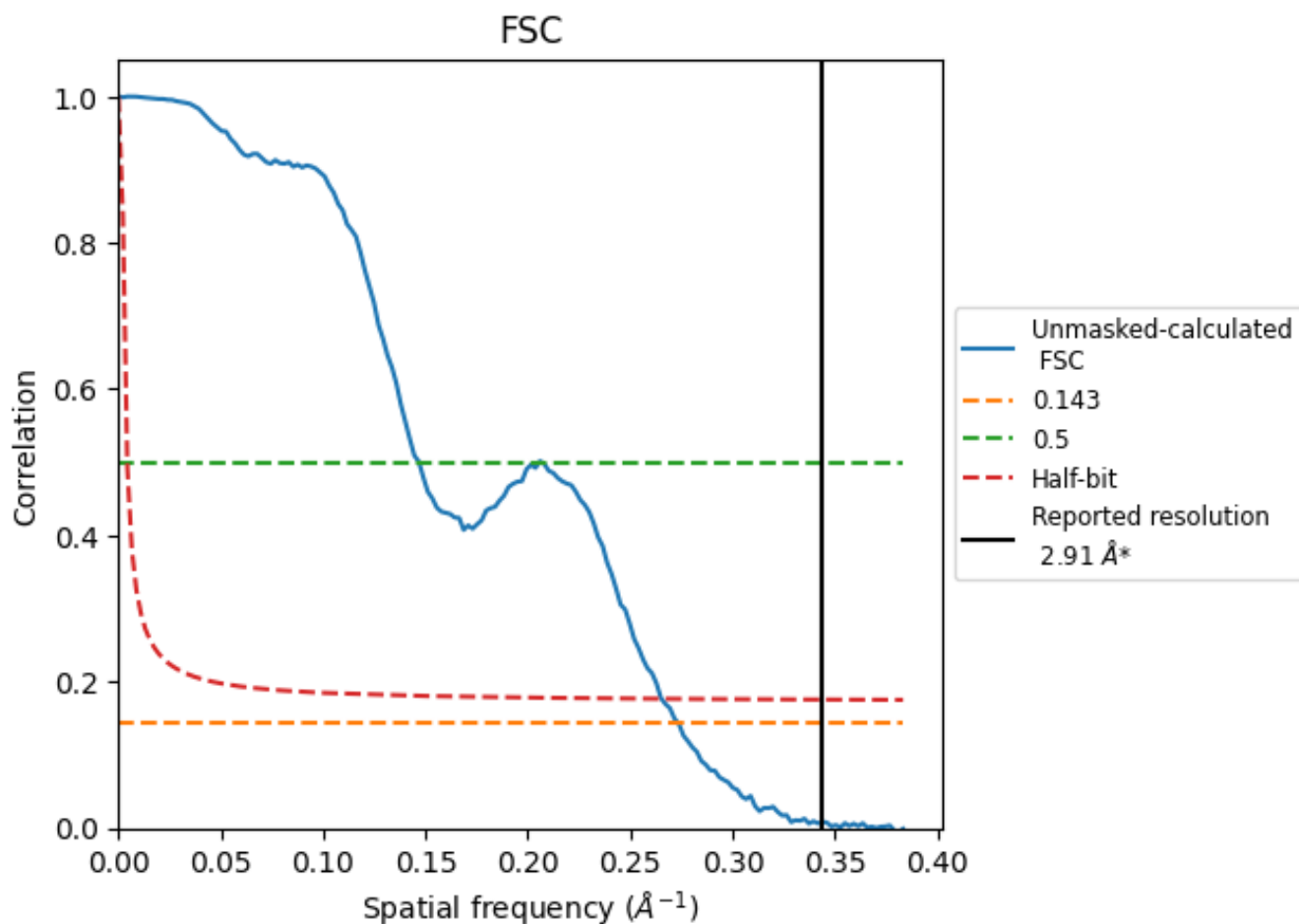


*Reported resolution corresponds to spatial frequency of 0.344 \AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.344 Å⁻¹

8.2 Resolution estimates [i](#)

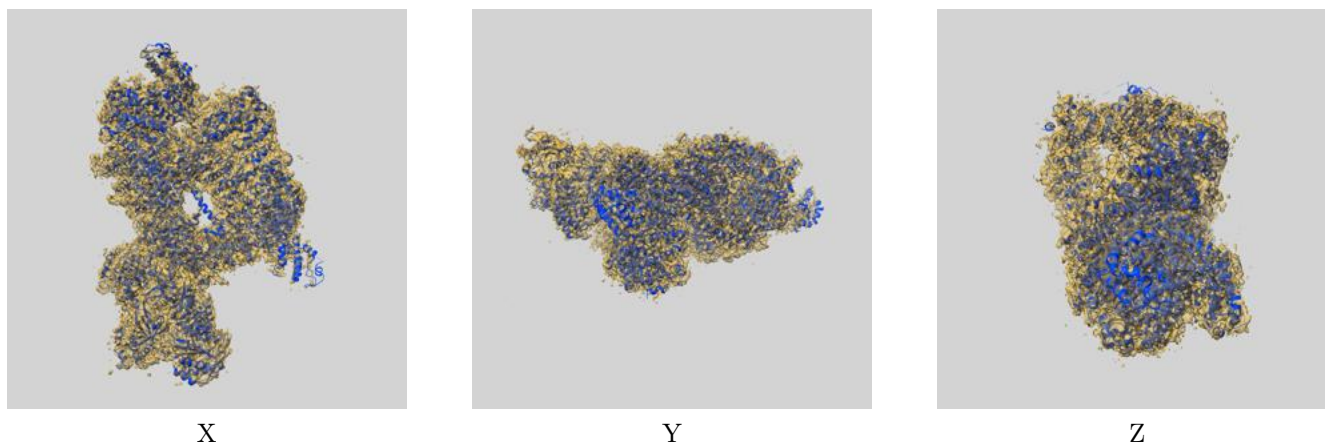
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.91	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.66	6.81	3.77

*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 3.66 differs from the reported value 2.91 by more than 10 %

9 Map-model fit [i](#)

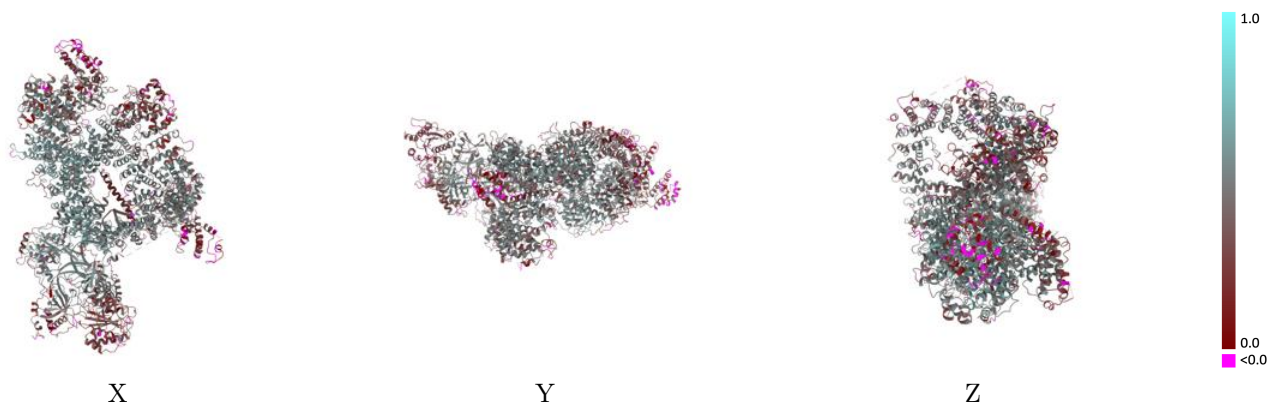
This section contains information regarding the fit between EMDB map EMD-14545 and PDB model 7Z87. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



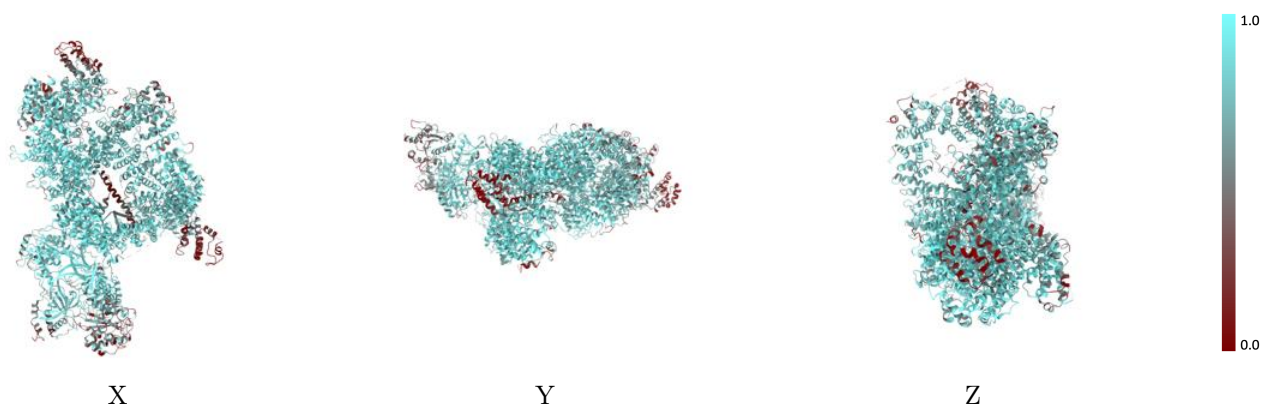
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



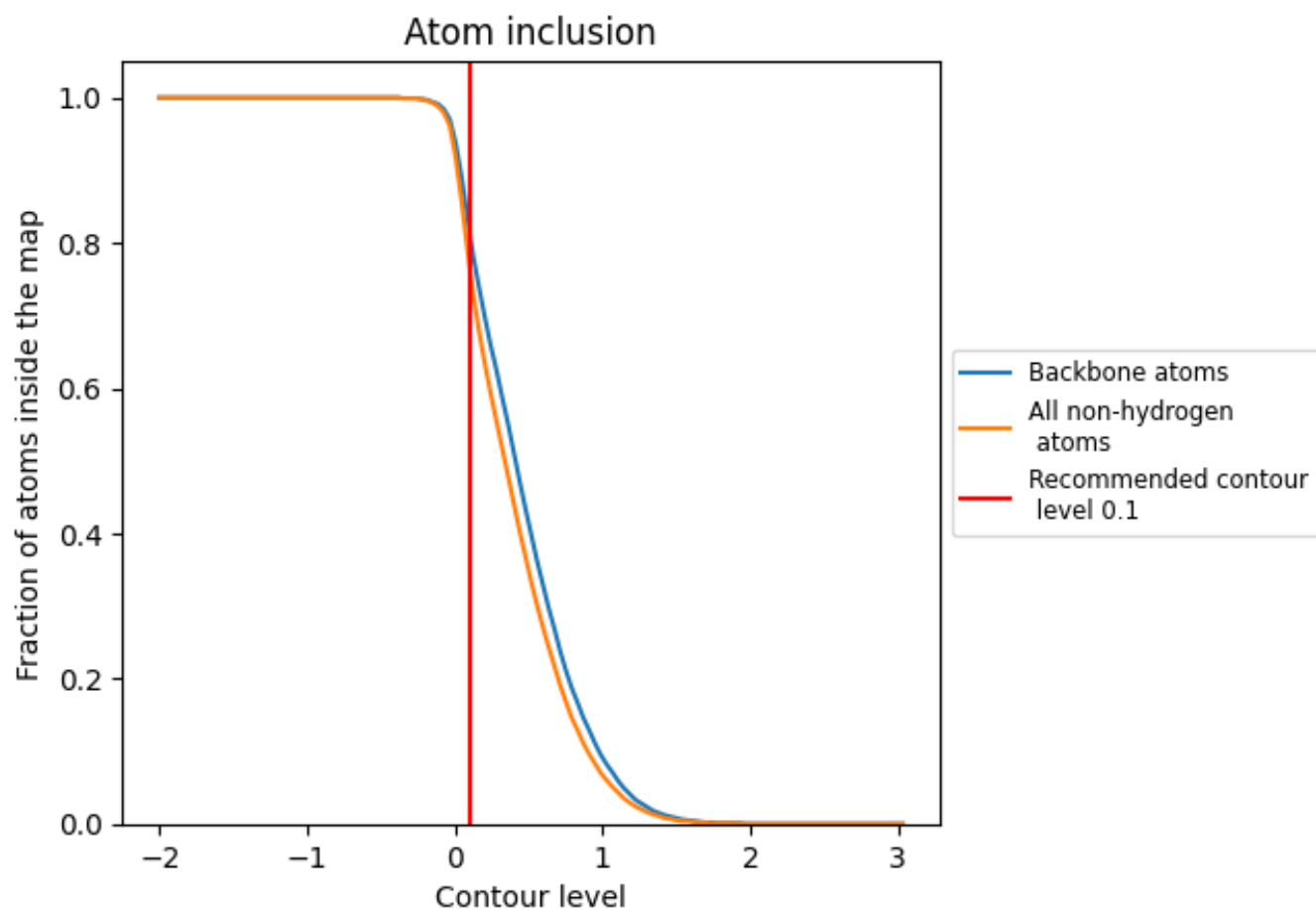
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.1).













9.4 Atom inclusion [i](#)



At the recommended contour level, 82% 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 (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7650	 0.4260
A	 0.7980	 0.4450
B	 0.7830	 0.4200
C	 0.5500	 0.3080
D	 0.9070	 0.5050
E	 0.8810	 0.5250

