



## wwPDB EM Validation Summary Report ⓘ

Dec 21, 2023 – 06:36 PM EST

PDB ID : 8TZF  
EMDB ID : EMD-41757  
Title : Structure of full length LRRK2 bound to GZD-824 (I2020T mutant)  
Authors : Villagran-Suarez, A.; Sanz-Murillo, M.; Alegrio-Louro, J.; Leschziner, A.  
Deposited on : 2023-08-26  
Resolution : 3.40 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](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev70  
Mogul : 1.8.5 (274361), 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 : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

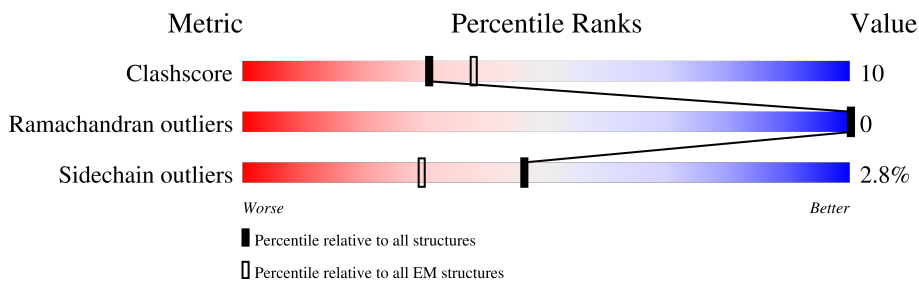
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.40 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  $\geq 3$ , 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	2527	
2	B	182	

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 12170 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 Leucine-rich repeat serine/threonine-protein kinase 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1589	11685	7450	2031	2147	57	0	0

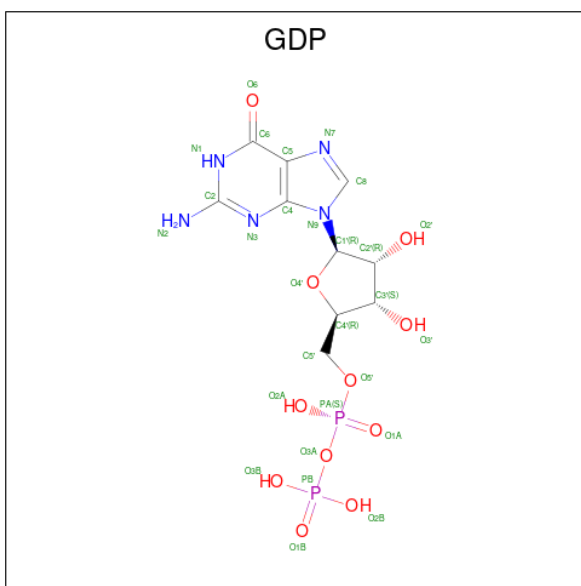
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	2020	THR	ILE	engineered mutation	UNP Q5S007

- Molecule 2 is a protein called designed ankyrin repeat proteins E11.

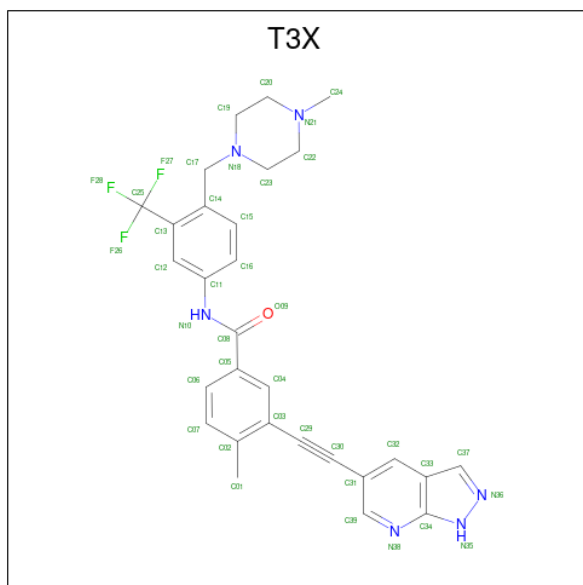
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	B	84	419	249	86	84	0	0

- Molecule 3 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula:  $C_{10}H_{15}N_5O_{11}P_2$ ).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
3	A	1	28	10	5	11	2	0

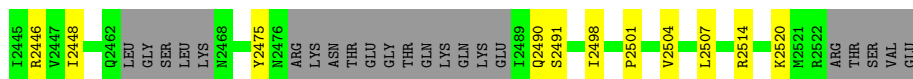
- Molecule 4 is 4-methyl-N-{4-[(4-methylpiperazin-1-yl)methyl]-3-(trifluoromethyl)phenyl}-3-[(1H-pyrazolo[3,4-b]pyridin-5-yl)ethynyl]benzamide (three-letter code: T3X) (formula: C<sub>29</sub>H<sub>27</sub>F<sub>3</sub>N<sub>6</sub>O) (labeled as "Ligand of Interest" by depositor).



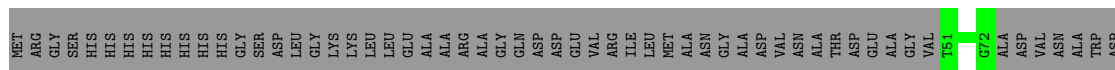
Mol	Chain	Residues	Atoms					AltConf
			Total	C	F	N	O	
4	A	1	38	28	3	6	1	0



ALA	GLN	ARG	ARG	ASP	ASP	LEU	LEU	ASP	SER	GLY	GLU	SER	GLY	GLU	GLY	SER	PHE	PHE	LEU	VAL	VAL	VAL	LYS	LYS	SER	ASN	ASN	SER	ILE	SER	SER	VAL	VAL	ILE	GLY	GLY	PHE	PHE	LEU	VAL	VAL	ARG	ARG	CYS	SER	PRO	ASN	ASN	LEU	LEU	ARG	HIS	SER	ASN	SER	LEU	GLY	PRO	ILE	ILE	PHE	ASP	ASP	HIS	HIS	GLY	ASP	LEU	LEU	LYS
W2301	C2302	L2303	S2306	ASN	THR	THR	GLU	ASP	GLY	LYS	ARG	ASN	W2314	G2320	S2341	Y2249	L2354	K2362	LEU	CYS	GLY	L2386	L2387	D2388	W2396	VAL	LYS	L2263	L2264	ASN	K2271	F2275	GLU	ASP	LYS	LYS	THR	THR	VAL	LYS	LYS	VAL	VAL	GLY	ALA	ALA	PRO	LEU	K2289	N2292	Y2295	VAL	L2436	L2437	L2444															
D2094	Y2099	C2114	L2115	Q2120	Q2127	L2131	L2132	L2137	L2144	Y2249	C2250	N2251	S2252	PHE	SER	LYS	GLN	ARG	W2184	G2170	CYS	GLY	HIS	ASN	PHE	L2182	T2190	SER	GLY	GLU	VAL	L2179	L2182	T2190	SER	GLY	VAL	VAL	ALA	ALA	ARG	PRO	LEU	C2201	L2202	A2203	L2204	VAL	HIS	LEU	PRO	VAL																		
L2002	I2016	D2017	L2018	G2019	T2020	ALA	GLN	TYR	CYS	CYS	ARG	MET	GLY	ILE	LYS	THR	SER	GLU	GLY	P2036	A2040	P2041	V2043	I2049	Y2050	ASP	Q2052	Q2053	Y2057	L2061	Y2064	T2068	R2072	K2078	F2079	P2080	ASN	GLU	PHE	ASP	GLY	LEU	C2201	L2202	A2203	L2204	VAL	HIS	LEU	PRO	VAL																			
I1850	P1851	D1858	L1859	I1860	L1861	A1862	D1863	L1864	L1870	M1871	Q1878	Q1879	G1886	S1889	V1905	HIS	ASN	D1907	L1917	R1918	L1921	R1941	P1942	R1943	M1944	L1945	V1946	K1952	D1956	R1957	L1958	Q1961	R1973	I1974	A1975	D1980	G1981	L1982	I1991	Y1992	P1997	H1998	N1999																											
H1732	Y1733	W1734	G1737	I1738	Y1739	W1742	I1658	A1659	PRO	ILE	GLY	GLU	GLU	TYR	L1576	M1577	V1581	L1582	L1583	Q1586	D1587	P1588	L1595	P1600	I1610	V1613	V1614	VAL	GLY	CYS	PRO	K1620	D1630	VAL	GLY	LYS	PHE	LEU	GLY	ARG	LYS	ARG	ARG	ALA	L1727	R1731																								
W1644	Y1645	S1647	Q1648	L1649	D1657	I1658	A1659	PRO	ILE	GLY	GLU	GLU	TYR	L1474	V1481	L1482	R1483	Y1485	H1486	F1487	A1490	K1502	T1503	F1511	K1512	L1517	I1523	P1524	D1525	C1526	E1529	L1530	E1531	K1532	I1533	I1534	L1535	R1538	LYS	LYS	LYS	ARG	ARG	ALA	L1727	R1731																								
H1732	Y1733	W1734	G1737	I1738	Y1739	W1742	I1658	A1659	PRO	ILE	GLY	GLU	GLU	TYR	L1474	V1481	L1482	R1483	Y1485	H1486	F1487	A1490	K1502	T1503	F1511	K1512	L1517	I1523	P1524	D1525	C1526	E1529	L1530	E1531	K1532	I1533	I1534	L1535	R1538	LYS	LYS	LYS	ARG	ARG	ALA	L1727	R1731																							
I1850	P1851	D1858	L1859	I1860	L1861	A1862	D1863	L1864	L1870	M1871	Q1878	Q1879	G1886	S1889	V1905	HIS	ASN	D1907	L1917	R1918	L1921	R1941	P1942	R1943	M1944	L1945	V1946	K1952	D1956	R1957	L1958	Q1961	R1973	I1974	A1975	D1980	G1981	L1982	I1991	Y1992	P1997	H1998	N1999																											
L2002	I2016	D2017	L2018	G2019	T2020	ALA	GLN	TYR	CYS	CYS	ARG	MET	GLY	ILE	LYS	THR	SER	GLU	GLY	P2036	A2040	P2041	V2043	I2049	Y2050	ASP	Q2052	Q2053	Y2057	L2061	Y2064	T2068	R2072	K2078	F2079	P2080	ASN	GLU	PHE	ASP	GLY	LEU	C2201	L2202	A2203	L2204	VAL	HIS	LEU	PRO	VAL																			
D2094	Y2099	C2114	L2115	Q2120	Q2127	L2131	L2132	L2137	L2144	Y2249	C2250	N2251	S2252	PHE	SER	LYS	GLN	ARG	W2184	G2170	CYS	GLY	HIS	ASN	PHE	L2182	T2190	SER	GLY	GLU	VAL	L2179	L2182	T2190	SER	GLY	VAL	VAL	ALA	ALA	ARG	PRO	LEU	C2201	L2202	A2203	L2204	VAL	HIS	LEU	PRO	VAL																		
GLU	LYS	E2212	N2228	THR	GLU	ASP	GLY	LYS	ARG	ASN	THR	L2238	L2248	Y2249	C2250	N2251	S2252	PHE	SER	LYS	GLN	ARG	W2184	G2170	CYS	GLY	HIS	ASN	PHE	L2182	T2190	SER	GLY	GLU	VAL	VAL	ALA	ALA	ARG	PRO	LEU	C2201	L2202	A2203	L2204	VAL	HIS	LEU	PRO	VAL																				
W2301	C2302	L2303	S2306	ASN	THR	THR	GLU	ASP	GLY	LYS	ARG	ASN	W2314	G2320	S2341	Y2249	L2354	K2362	LEU	CYS	GLY	L2386	L2387	D2388	W2396	VAL	LYS	L2263	L2264	ASN	K2271	F2275	GLU	ASP	LYS	LYS	THR	THR	VAL	LYS	LYS	VAL	VAL	GLY	ALA	ALA	PRO	LEU	K2289	N2292	Y2295	VAL	L2436	L2437	L2444															



- Molecule 2: designed ankyrin repeat proteins E11



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	60465	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 ( $e^-/\text{\AA}^2$ )	55	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	150000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.144	Depositor
Minimum map value	-0.713	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.020	Depositor
Recommended contour level	0.0872	Depositor
Map size (Å)	342.0, 342.0, 342.0	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.95, 0.95, 0.95	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: GDP, T3X

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	0.27	0/11870	0.50	1/16117 (0.0%)
2	B	0.23	0/416	0.33	0/572
All	All	0.27	0/12286	0.49	1/16689 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1262	PRO	CA-N-CD	-5.38	103.97	111.50

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	11685	0	11052	229	0
2	B	419	0	199	0	0
3	A	28	0	12	0	0
4	A	38	0	0	0	0
All	All	12170	0	11263	229	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 10.

The worst 5 of 229 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:1419:TYR:HB2	1:A:1451:GLY:HA2	1.63	0.78
1:A:2424:ALA:HA	1:A:2437:LEU:O	1.86	0.75
1:A:990:SER:O	1:A:1021:ASN:ND2	2.19	0.74
1:A:1215:ALA:HB2	1:A:1239:GLU:HG2	1.71	0.73
1:A:1177:ILE:HG12	1:A:1200:SER:HB2	1.74	0.70

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	1531/2527 (61%)	1405 (92%)	126 (8%)	0	100	100
2	B	76/182 (42%)	73 (96%)	3 (4%)	0	100	100
All	All	1607/2709 (59%)	1478 (92%)	129 (8%)	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	1145/2281 (50%)	1113 (97%)	32 (3%)	43	70

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	B	1/141 (1%)	1 (100%)	0	100	100
All	All	1146/2422 (47%)	1114 (97%)	32 (3%)	46	70

5 of 32 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2064	TYR
1	A	2094	ASP
1	A	1511	PHE
1	A	1445	SER
1	A	2137	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1021	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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

2 ligands are 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
4	T3X	A	2602	-	42,42,43	3.28	20 (47%)	53,60,62	1.59	9 (16%)
3	GDP	A	2601	-	24,30,30	0.98	1 (4%)	30,47,47	1.35	4 (13%)

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	T3X	A	2602	-	-	5/23/33/33	0/5/5/5
3	GDP	A	2601	-	-	2/12/32/32	0/3/3/3

The worst 5 of 21 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	2602	T3X	C17-N18	-7.26	1.33	1.47
4	A	2602	T3X	C24-N21	-7.02	1.30	1.46
4	A	2602	T3X	C22-N21	-6.78	1.31	1.46
4	A	2602	T3X	C20-N21	-6.63	1.32	1.46
4	A	2602	T3X	C23-N18	-5.83	1.30	1.46

The worst 5 of 13 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	2602	T3X	C37-C33-C34	-5.66	99.97	105.20
4	A	2602	T3X	C33-C37-N36	4.34	122.41	111.30
3	A	2601	GDP	PA-O3A-PB	-4.22	118.36	132.83
4	A	2602	T3X	C23-N18-C19	3.15	115.92	108.83
4	A	2602	T3X	C31-C39-N38	-3.13	122.65	124.36

There are no chirality outliers.

5 of 7 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2601	GDP	C5'-O5'-PA-O1A
4	A	2602	T3X	C03-C29-C30-C31
4	A	2602	T3X	C14-C17-N18-C19
4	A	2602	T3X	C16-C11-N10-C08

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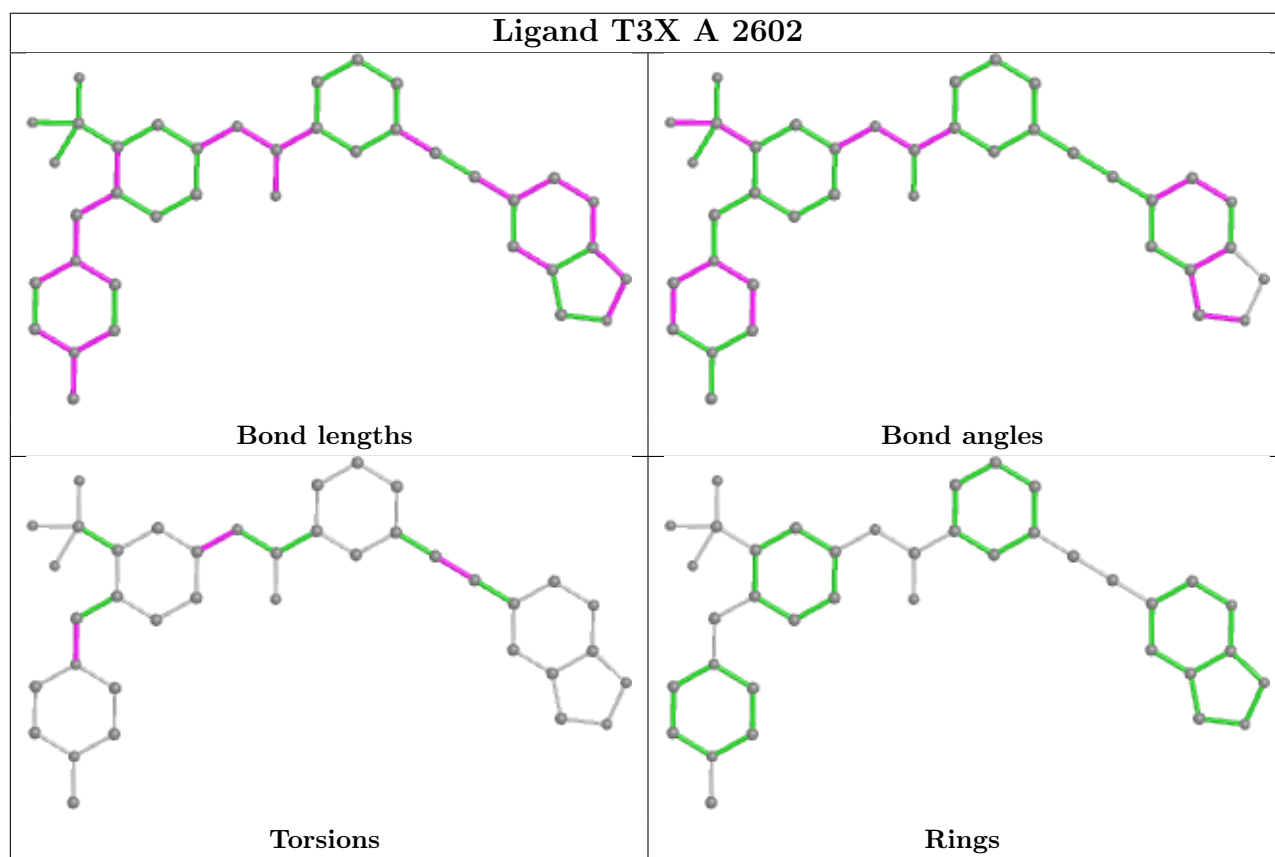
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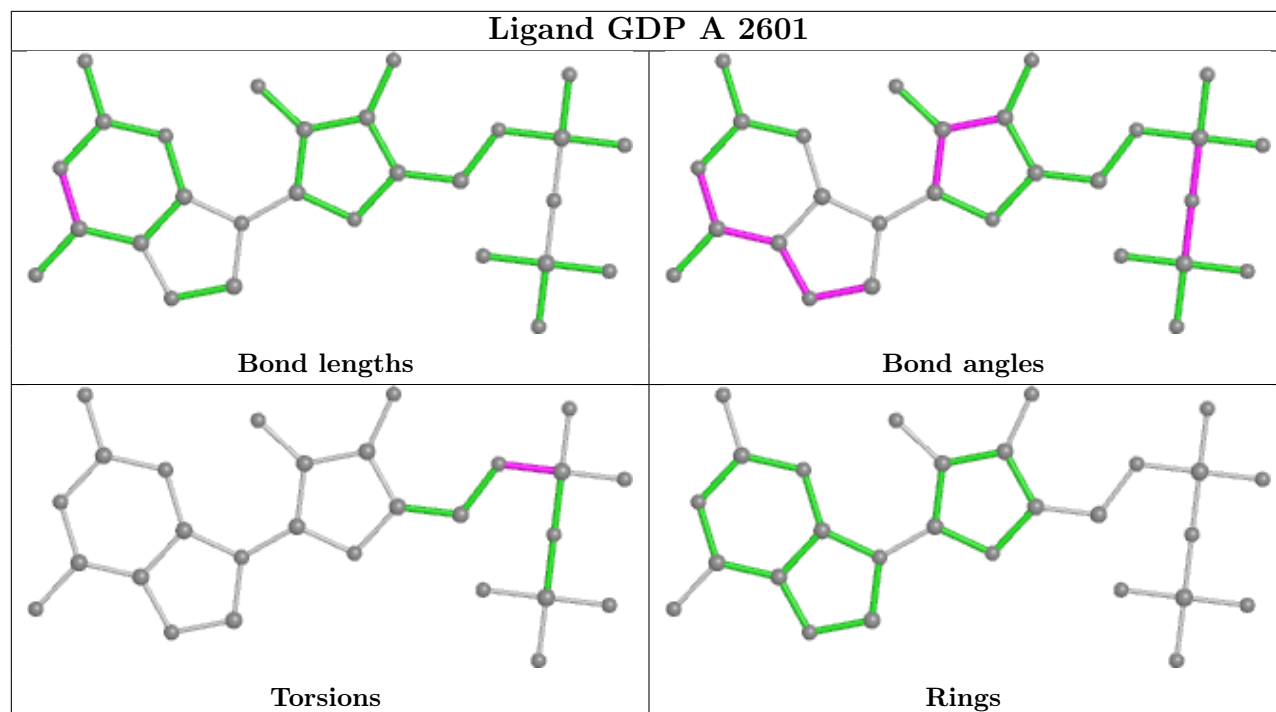
Mol	Chain	Res	Type	Atoms
3	A	2601	GDP	C5'-O5'-PA-O3A

There are no ring outliers.

No monomer is involved in short contacts.

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.

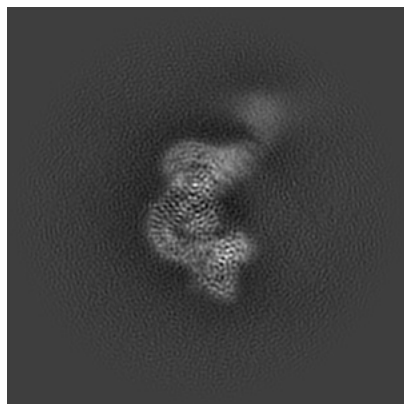
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41757. These allow visual inspection of the internal detail of the map and identification of artifacts.

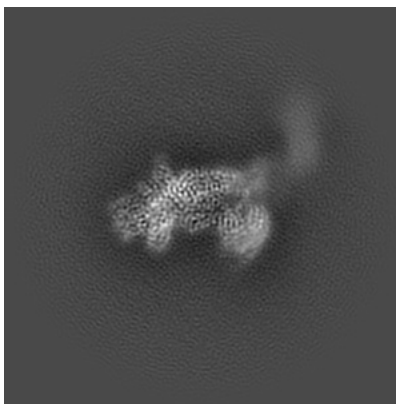
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

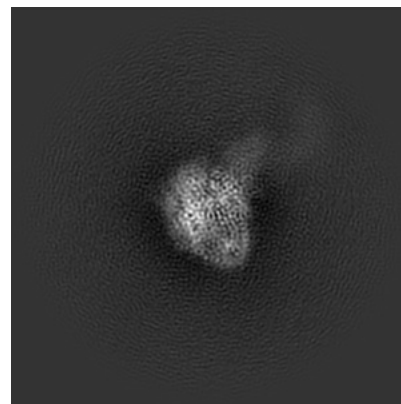
#### 6.1.1 Primary map



X

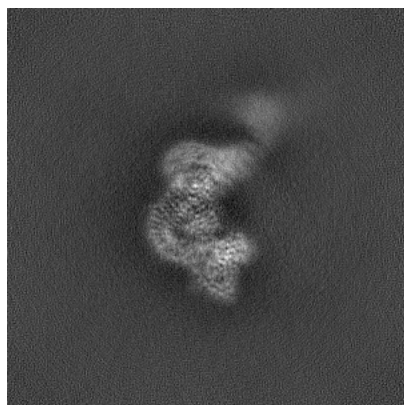


Y

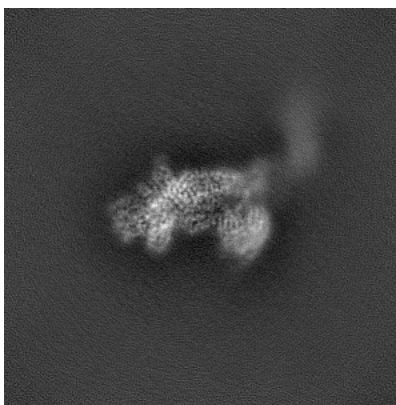


Z

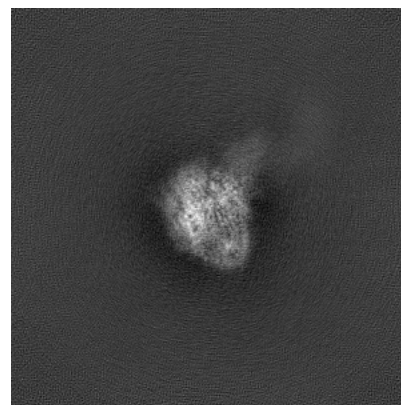
#### 6.1.2 Raw map



X



Y



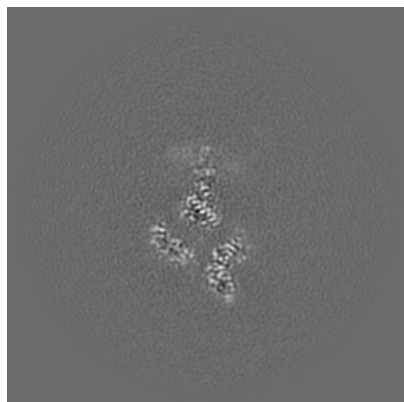
Z

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

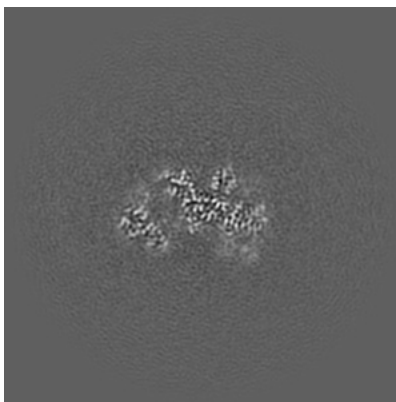


## 6.2 Central slices [i](#)

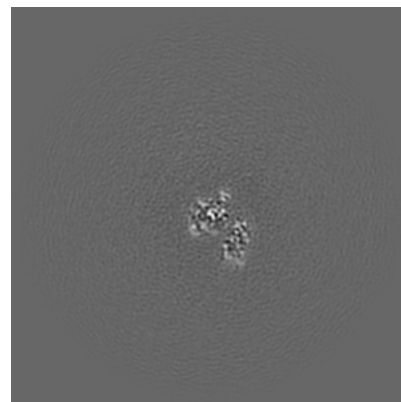
### 6.2.1 Primary map



X Index: 180

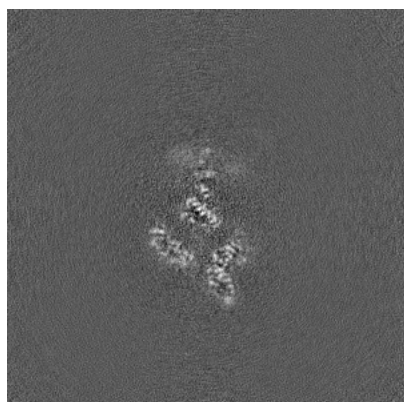


Y Index: 180

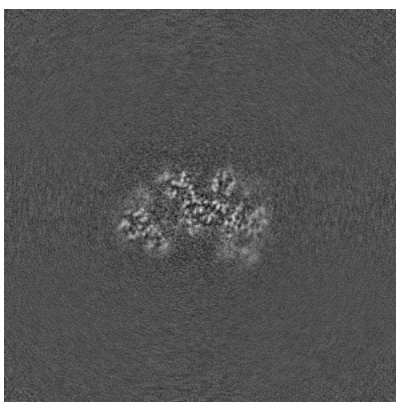


Z Index: 180

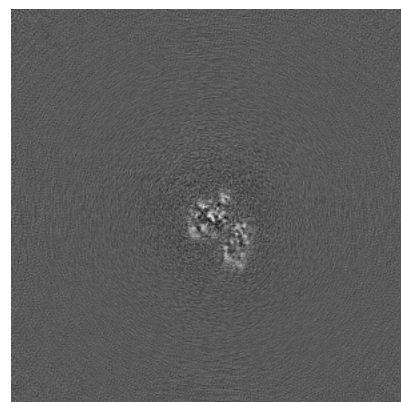
### 6.2.2 Raw map



X Index: 180



Y Index: 180



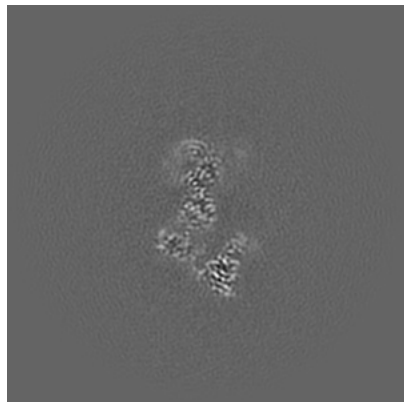
Z Index: 180

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

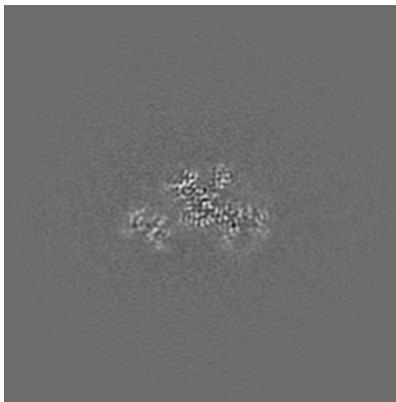


## 6.3 Largest variance slices [i](#)

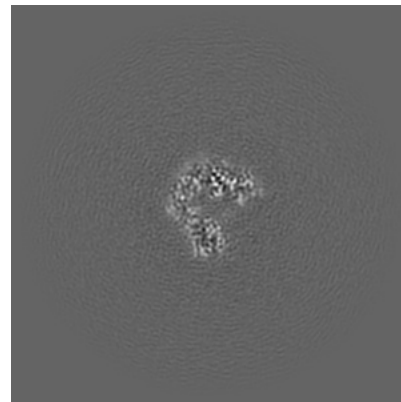
### 6.3.1 Primary map



X Index: 171

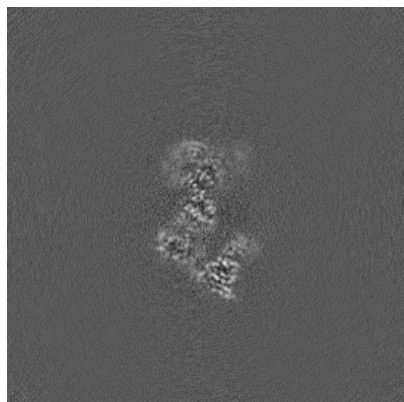


Y Index: 172

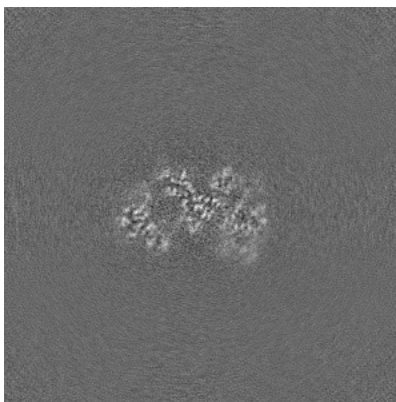


Z Index: 141

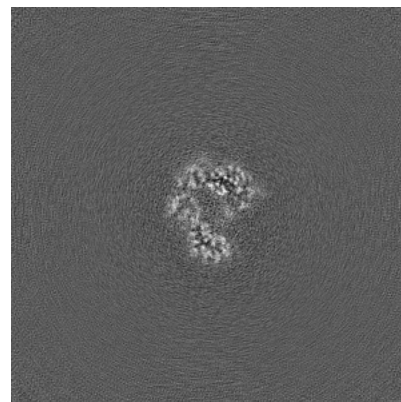
### 6.3.2 Raw map



X Index: 171



Y Index: 181

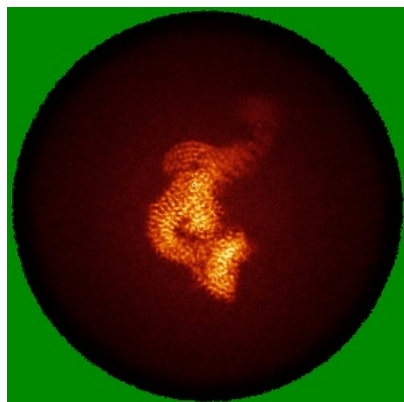


Z Index: 145

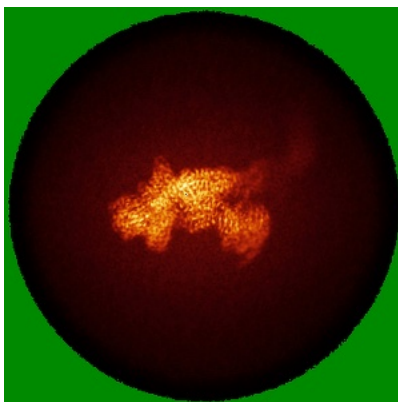
The images above show the largest variance slices of the map in three orthogonal directions.

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

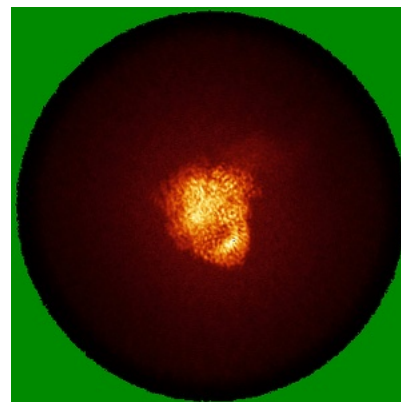
### 6.4.1 Primary map



X

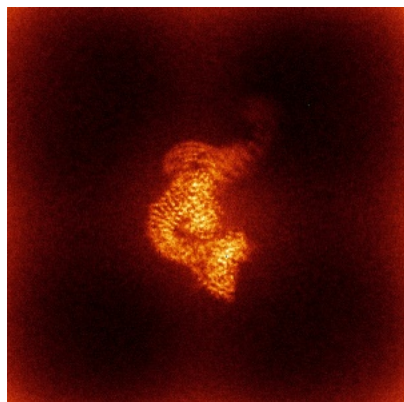


Y

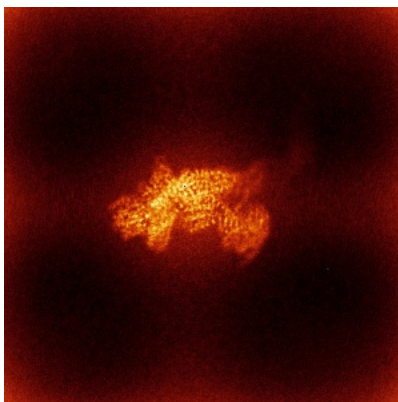


Z

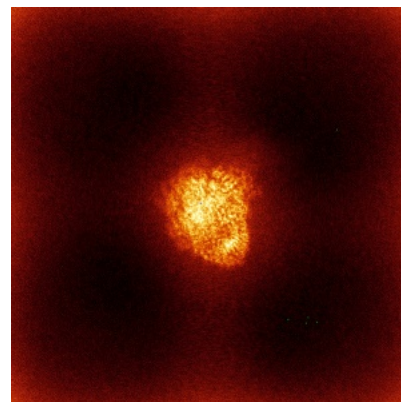
### 6.4.2 Raw map



X



Y

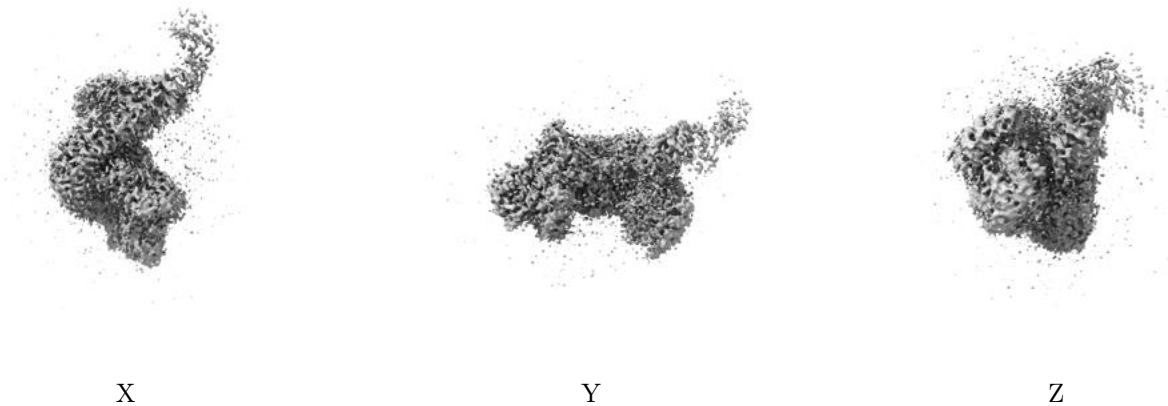


Z

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.

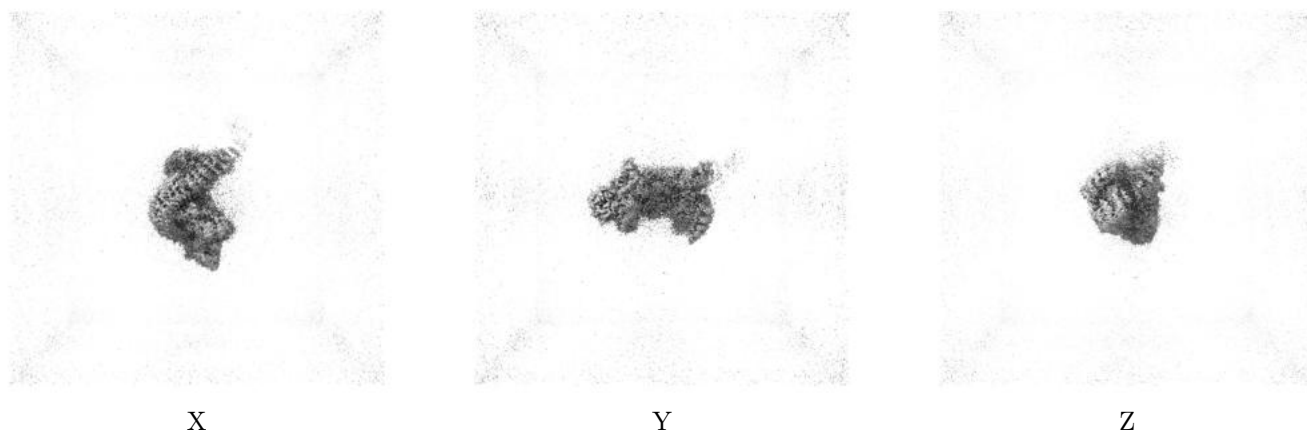
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0872. 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.

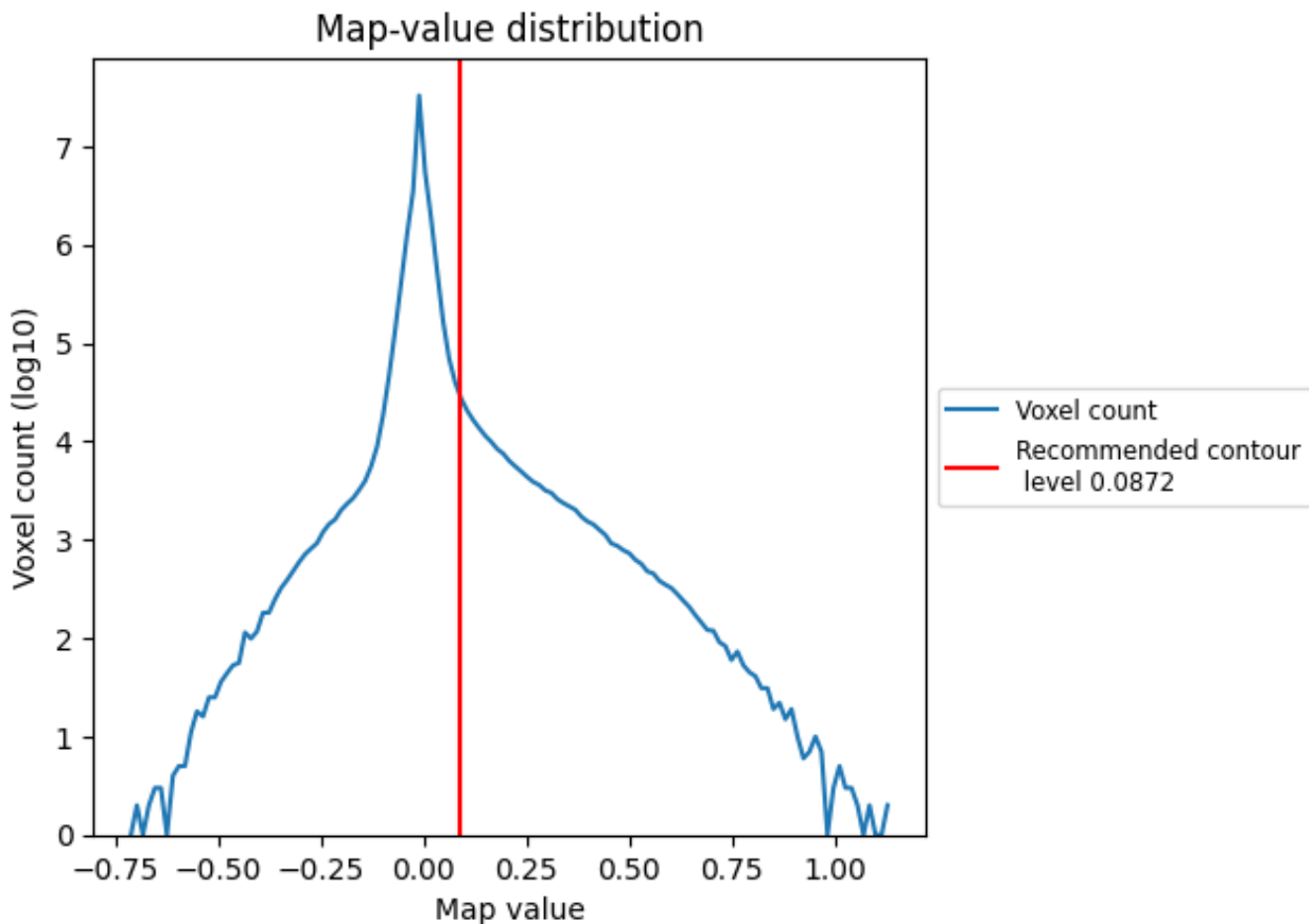
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

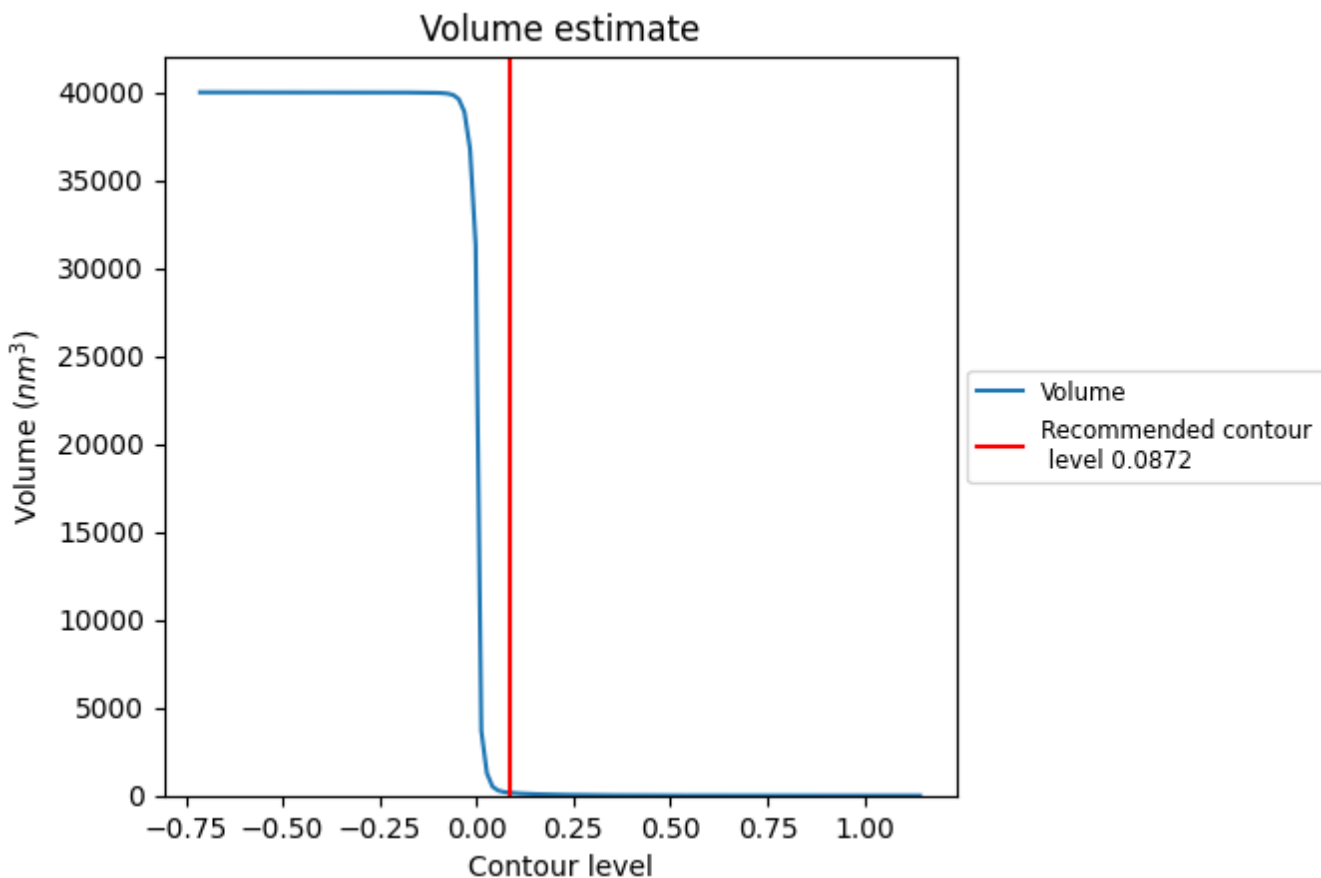
This section contains the results of statistical analysis of the map.

### 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.

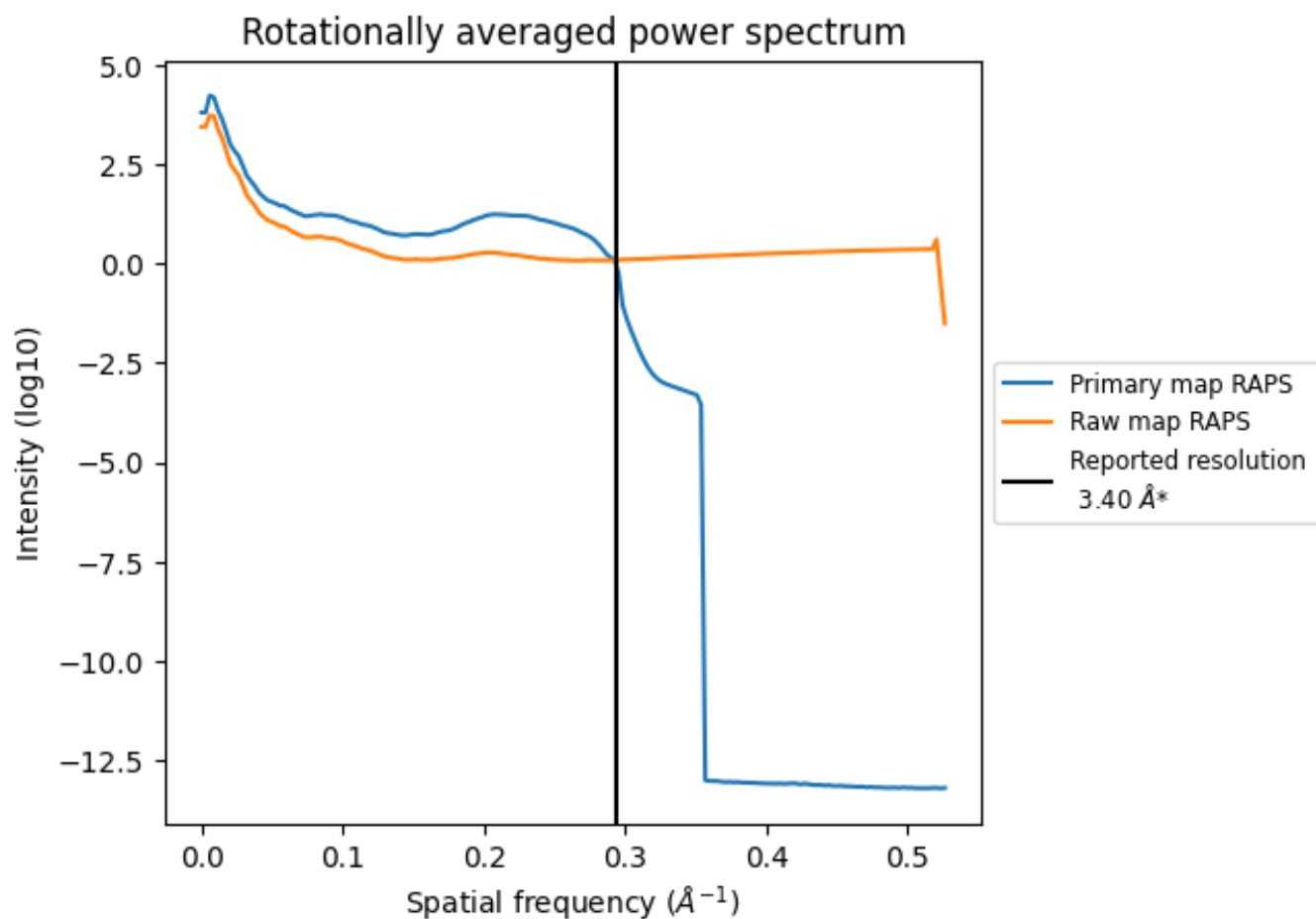
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 159 nm<sup>3</sup>; this corresponds to an approximate mass of 143 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](#)

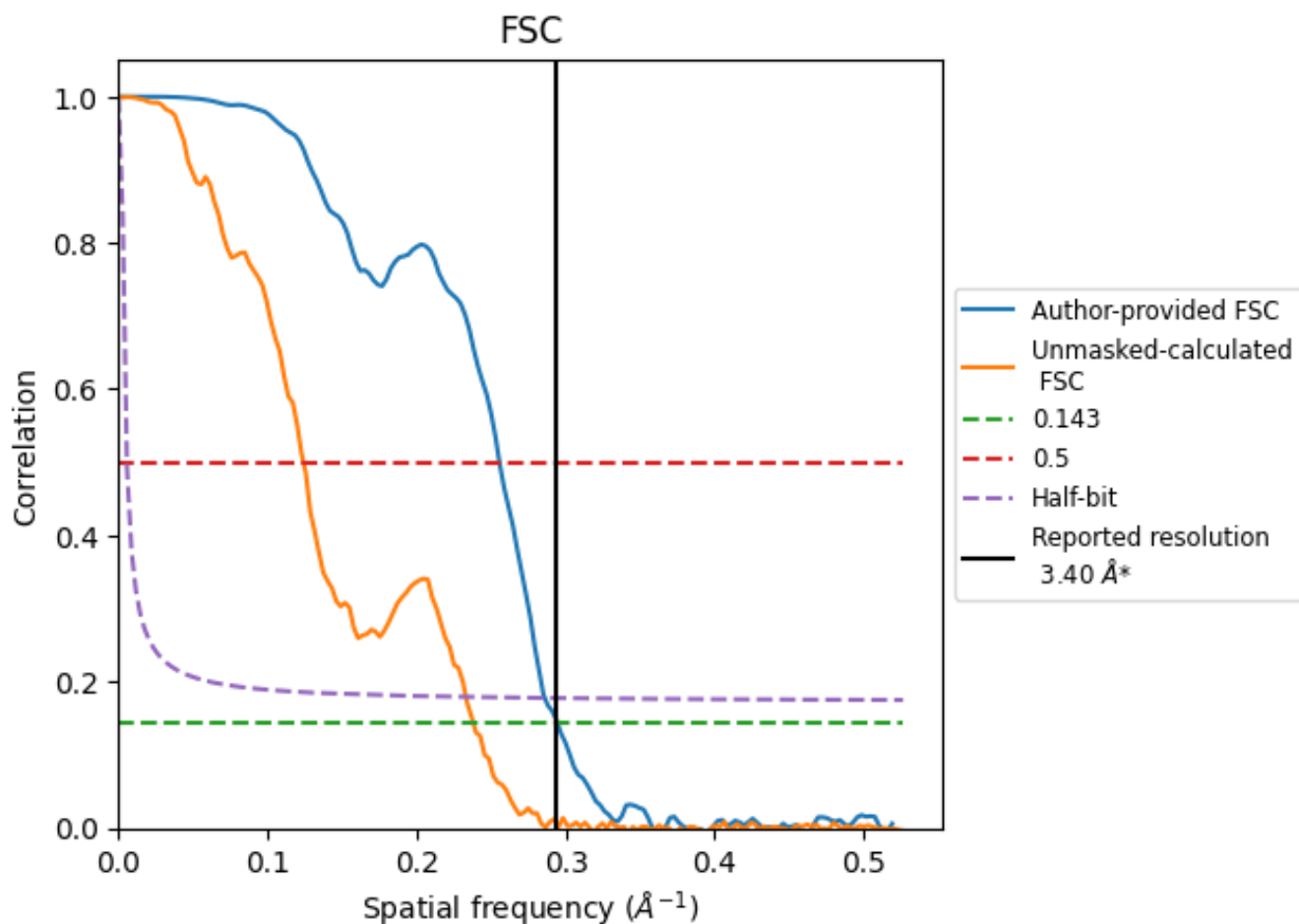


\*Reported resolution corresponds to spatial frequency of 0.294 Å<sup>-1</sup>

## 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 0.294 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.40	3.91	3.50
Unmasked-calculated*	4.20	8.05	4.29

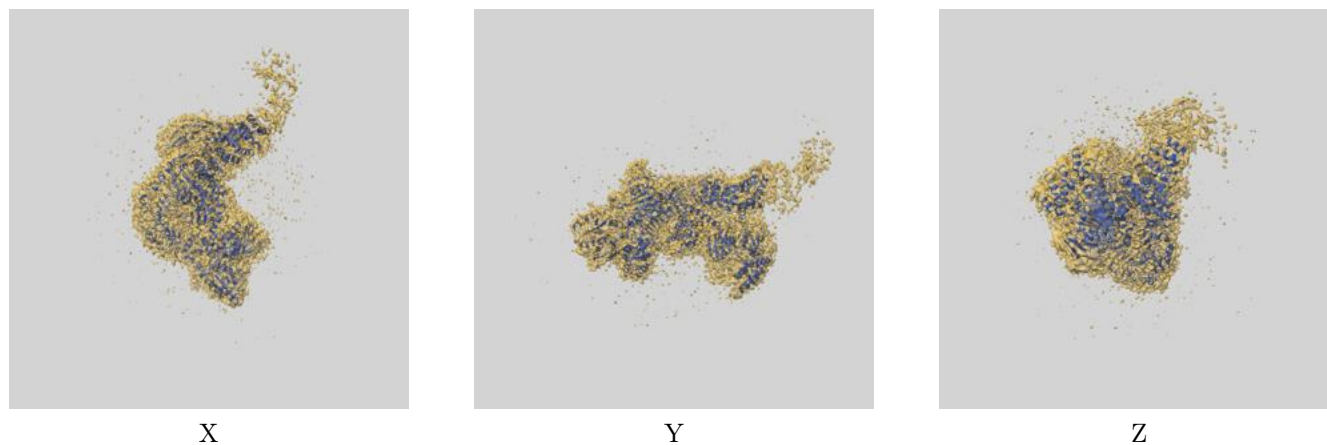
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.20 differs from the reported value 3.4 by more than 10 %



## 9 Map-model fit [i](#)

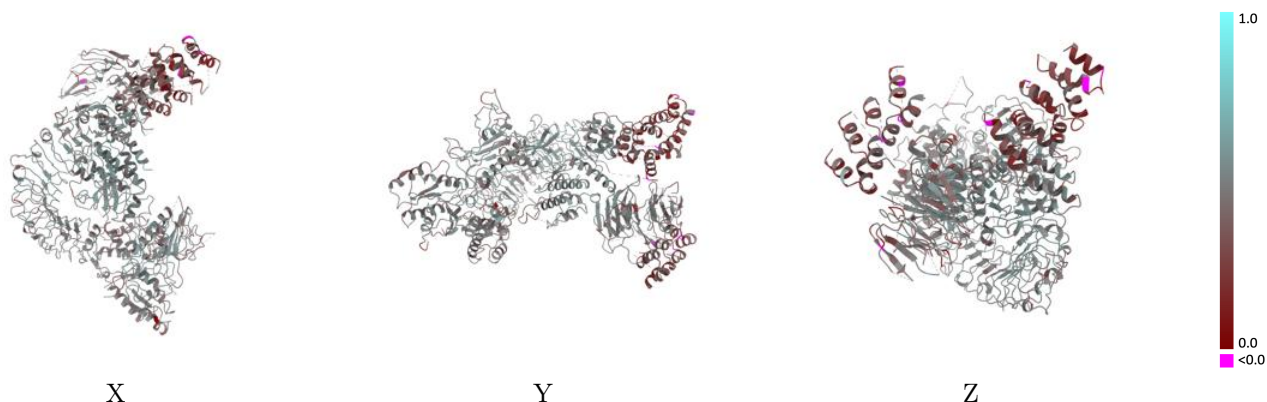
This section contains information regarding the fit between EMDB map EMD-41757 and PDB model 8TZF. Per-residue inclusion information can be found in section 3 on page 5.

### 9.1 Map-model overlay [i](#)



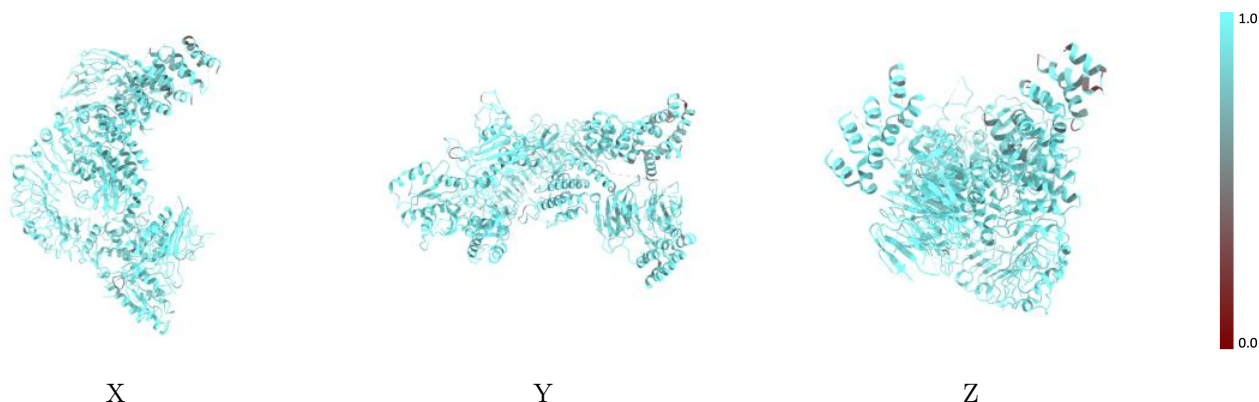
The images above show the 3D surface view of the map at the recommended contour level 0.0872 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



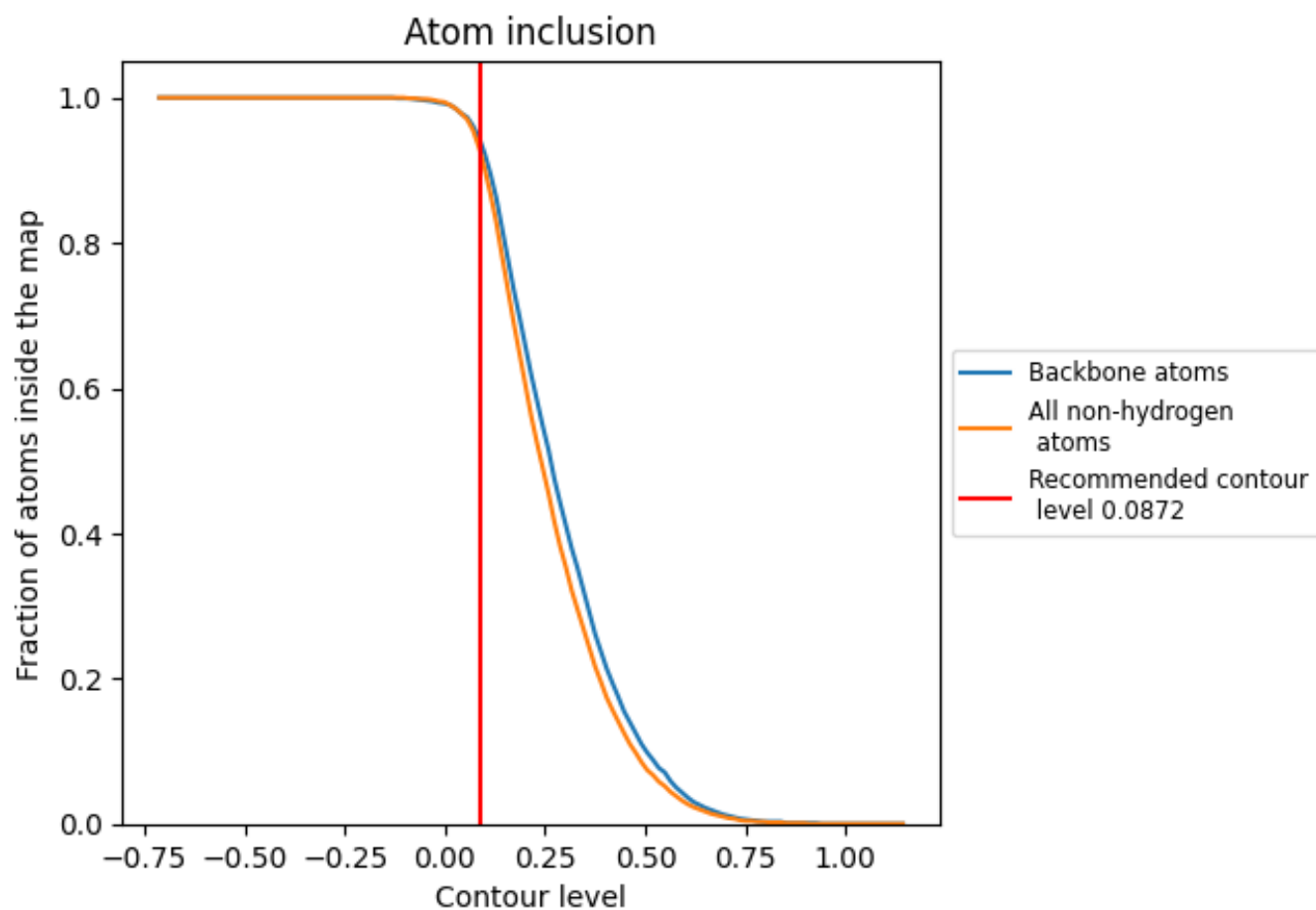
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0872).




## 9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 93% 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 (0.0872) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9280	 0.4600
A	 0.9280	 0.4650
B	 0.9160	 0.3230

