WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report (i)

May 27, 2024 – 06:07 PM EDT

PDB ID	:	4ZNN
EMDB ID	:	EMD-3001
Title	:	MicroED structure of the segment, GVVHGVTTVA, from the A53T familial mutant of Parkinson's disease protein, alpha-synuclein residues 47-56
Authors	:	Rodriguez, J.A.; Ivanova, M.; Sawaya, M.R.; Cascio, D.; Reyes, F.; Shi, D.; Johnson, L.; Guenther, E.; Sangwan, S.; Hattne, J.; Nannenga, B.; Brewster, A.S.; Messerschmidt, M.; Boutet, S.; Sauter, N.K.; Gonen, T.; Eisenberg, D.S.
Deposited on	:	2015-05-05
Resolution	:	1.41 Å(reported)

1   Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON CRYSTALLOGRAPHY

The reported resolution of this entry is 1.41 Å.

There are no overall percentile quality scores available for this entry.

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 70 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 Alpha-synuclein.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	A	10	Total 66	C 41	N 12	O 13	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	53	THR	ALA	engineered mutation	UNP P37840

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		AltConf
2	A	4	Total 4	O 4	0

SEQUENCE-PLOTS INFOmissingINFO

3 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	CRYSTALLOGRAPHY	Depositor
Imposed symmetry	POINT, Not provided	
Number of images used	Not provided	
Resolution determination method	Not provided	
CTF correction method	Not provided	
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	200	Depositor
Electron dose $(e^-/\text{Å}^2)$	Not provided	
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	Not provided	
Maximum map value	0.722	Depositor
Minimum map value	-0.368	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.157	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	17.93, 4.71, 33.03	wwPDB
Map dimensions	73, 43, 25	wwPDB
Map angles (°)	90.0, 94.326, 90.0	wwPDB
Pixel spacing (Å)	0.44825, 0.3925, 0.45874998	Depositor

4 Model quality ⓘ

4.1 Standard geometry ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles ⓘ

4.3.1 Protein backbone ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA ⓘ

MolProbity failed to run properly - this section is therefore empty.

4.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

4.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

4.6 Ligand geometry ⓘ

There are no ligands in this entry.

4.7 Other polymers ⓘ

There are no such residues in this entry.

4.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

5 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-3001. 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.
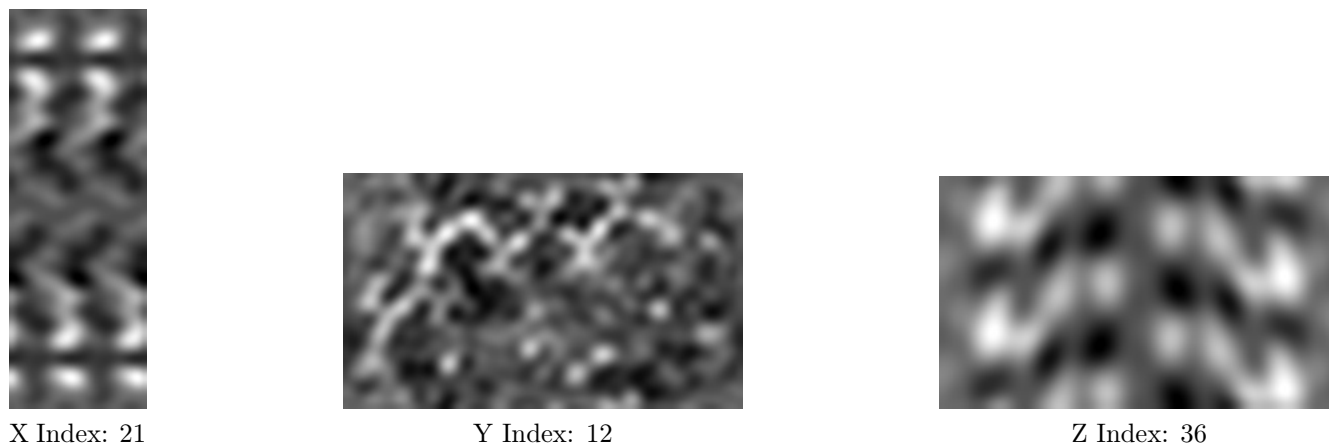
5.1 Orthogonal projections (i)

5.1.1 Primary map

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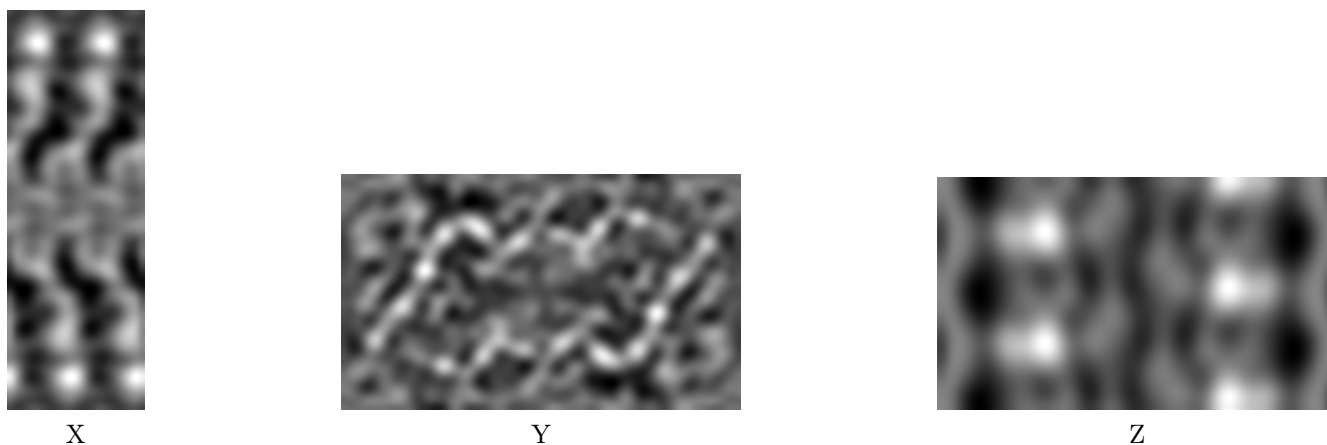
The images above show the map projected in three orthogonal directions.

5.2 Central slices (i)

5.2.1 Primary map

X Index: 21   Y Index: 12   Z Index: 36

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

5.3 Largest variance slices ⓘ

5.3.1 Primary map
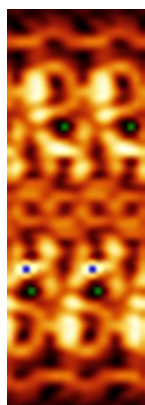

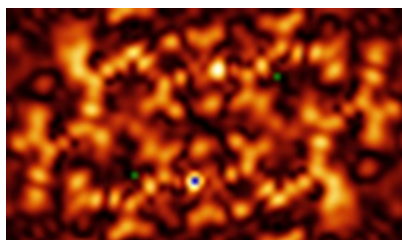X Index: 31   Y Index: 11   Z Index: 47

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

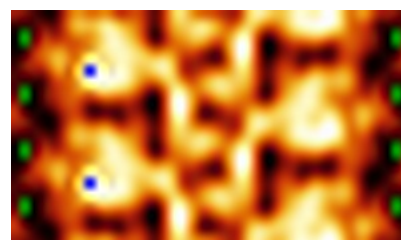## 5.4 Orthogonal standard-deviation projections (False-color) ⓘ
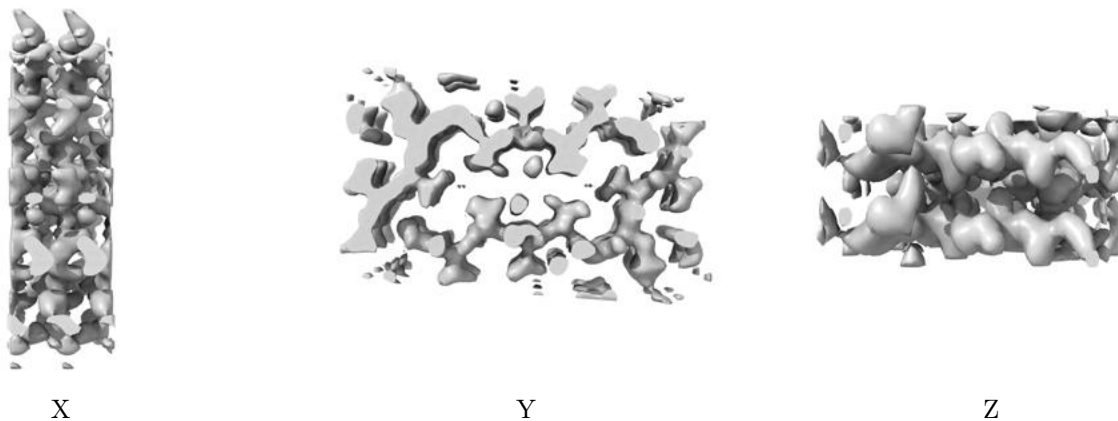
5.4.1 Primary map

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.

5.5 Orthogonal surface views ⓘ

5.5.1 Primary map

| X | Y | Z |

The images above show the 3D surface view of the map at the recommended contour level 0.15. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.
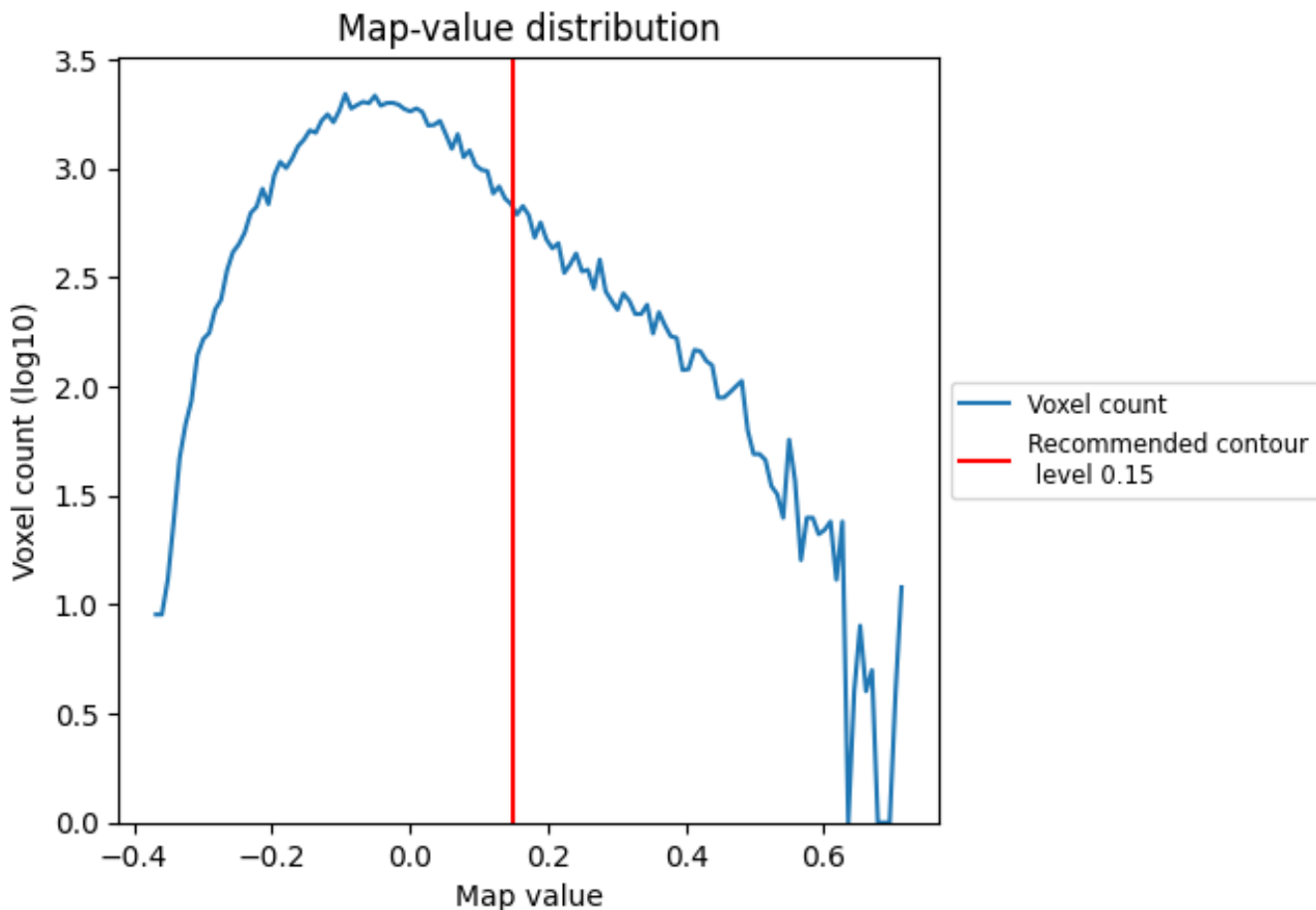
5.6 Mask visualisation ⓘ

This section was not generated. No masks/segmentation were deposited.
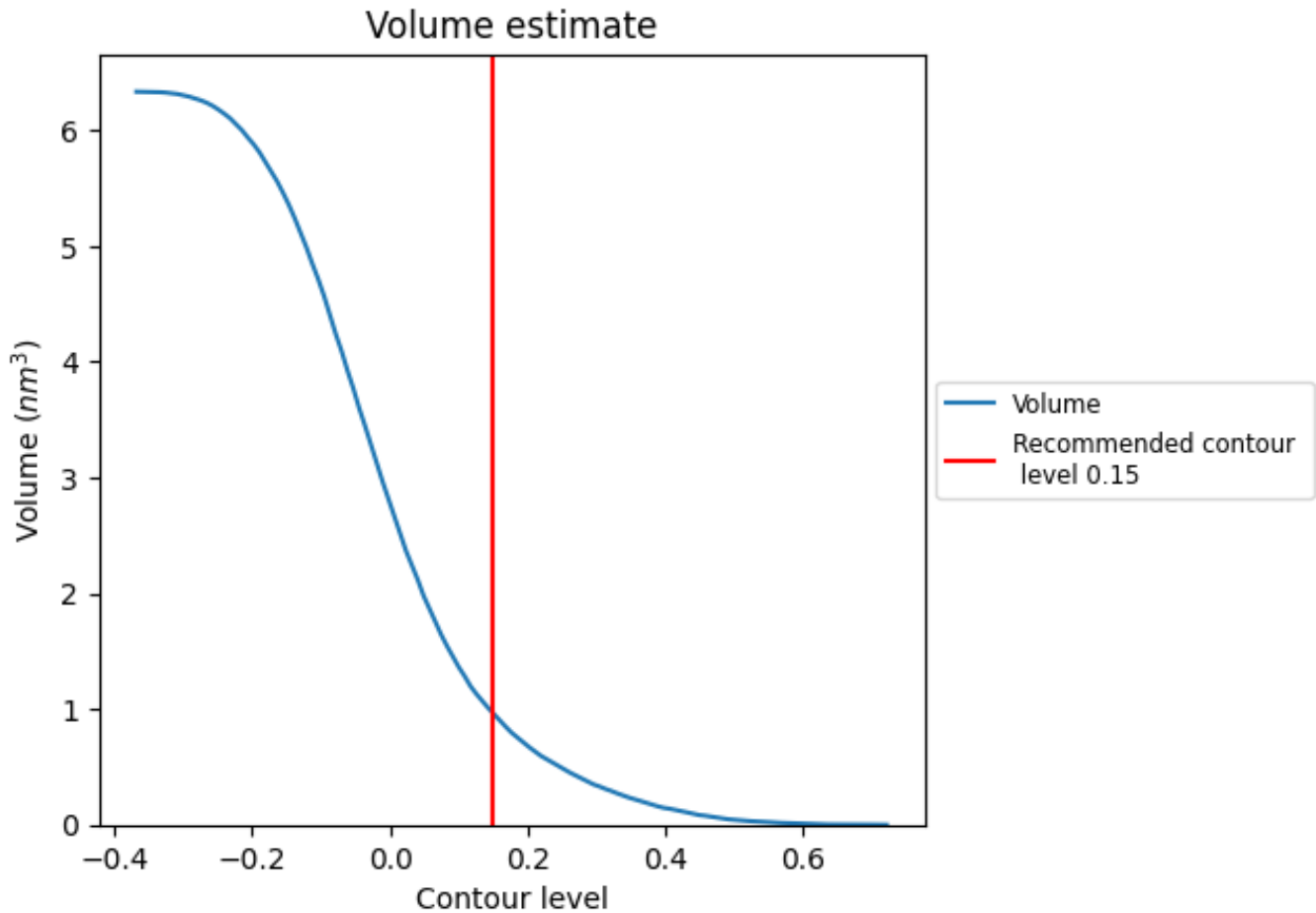
6   Map analysis (i)

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

6.1   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.

6.2 Volume estimate ⓘ

The volume at the recommended contour level is 1 nm³; this corresponds to an approximate mass of 1 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.

6.3 Rotationally averaged power spectrum ⓘ

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

7 Fourier-Shell correlation (i)

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

8　Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-3001 and PDB model 4ZNN. Per-residue inclusion information can be found in section **??** on page **??**.

8.1　Map-model overlay ⓘ

| X | Y | Z |
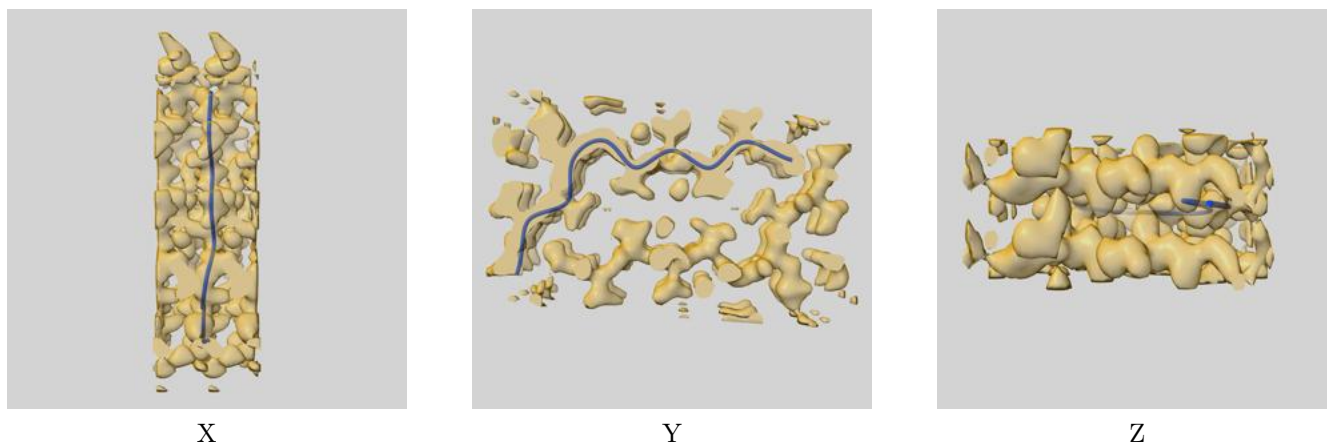
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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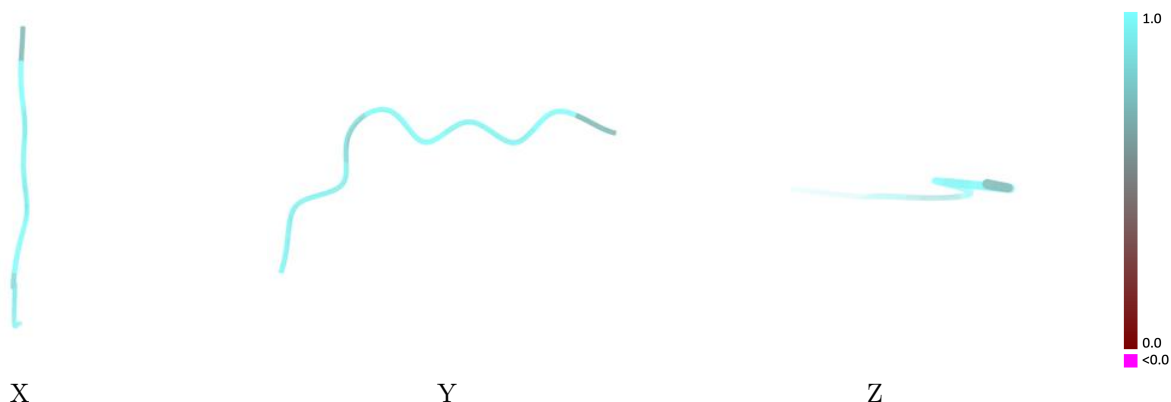
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

8.3 Atom inclusion mapped to coordinate model ⓘ
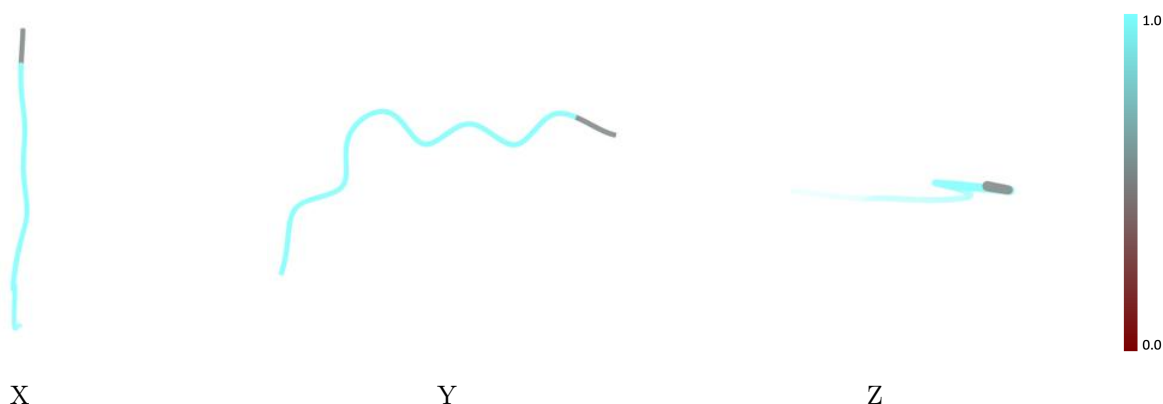
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.15).

8.4　Atom inclusion ⓘ
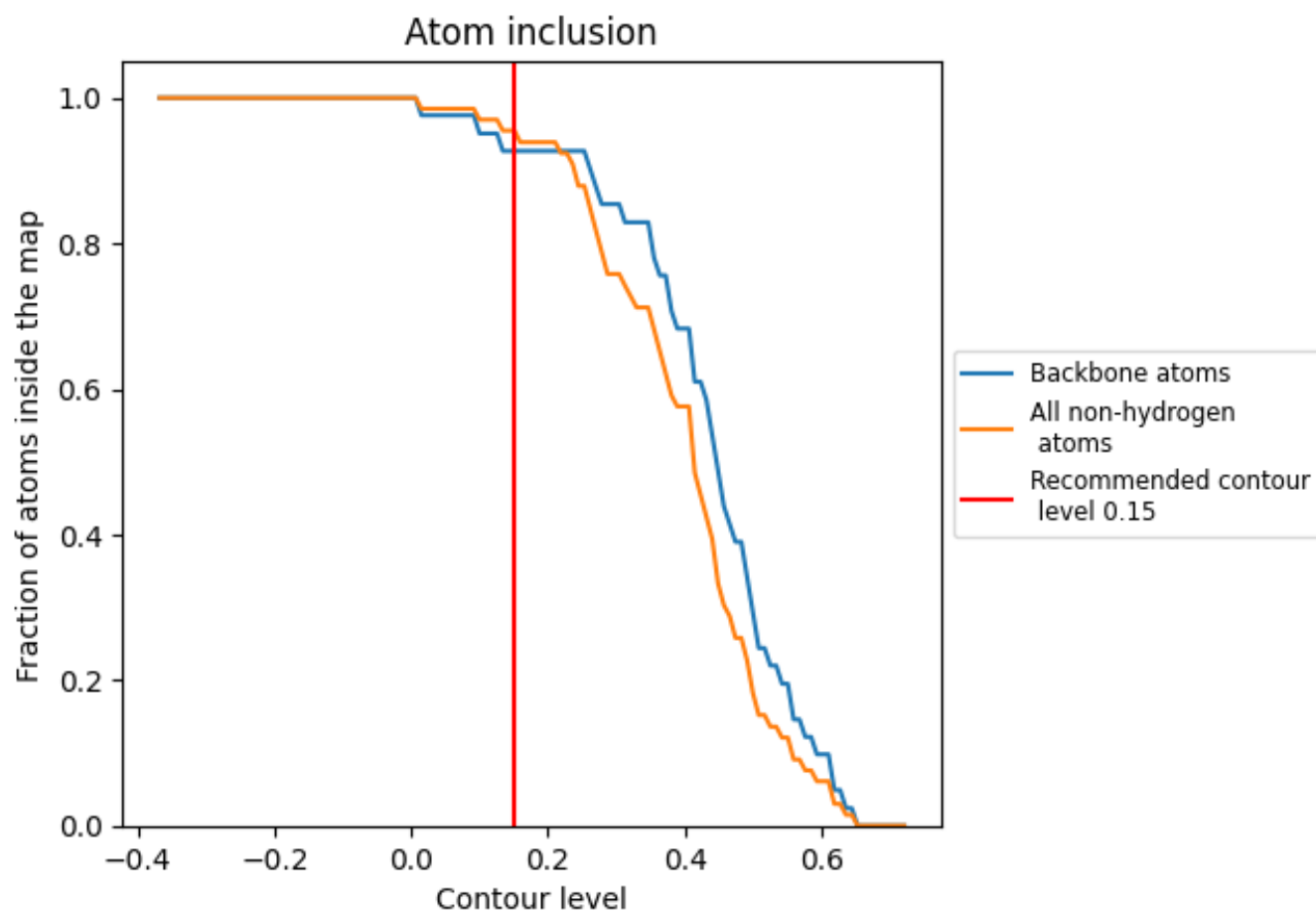
At the recommended contour level, 93% of all backbone atoms, 96% of all non-hydrogen atoms, are inside the map.

8.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9550	0.7940
A	0.9550	0.7940

1.0

0.0
<0.0