



wwPDB EM Validation Summary Report ⓘ

Nov 18, 2025 – 06:23 pm GMT

EMDB ID : EMD-53931
Title : Memory engram synapse 3D molecular architecture visualized by cryoCLEM-guided cryoET
Authors : Frank, R.A.W.; Lovatt, C.A.
Deposited on : 2025-06-02
Resolution : Not provided

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/EMTomogramValidationReportHelp>

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.dev129
Validation Pipeline (wwPDB-VP) : 2.46

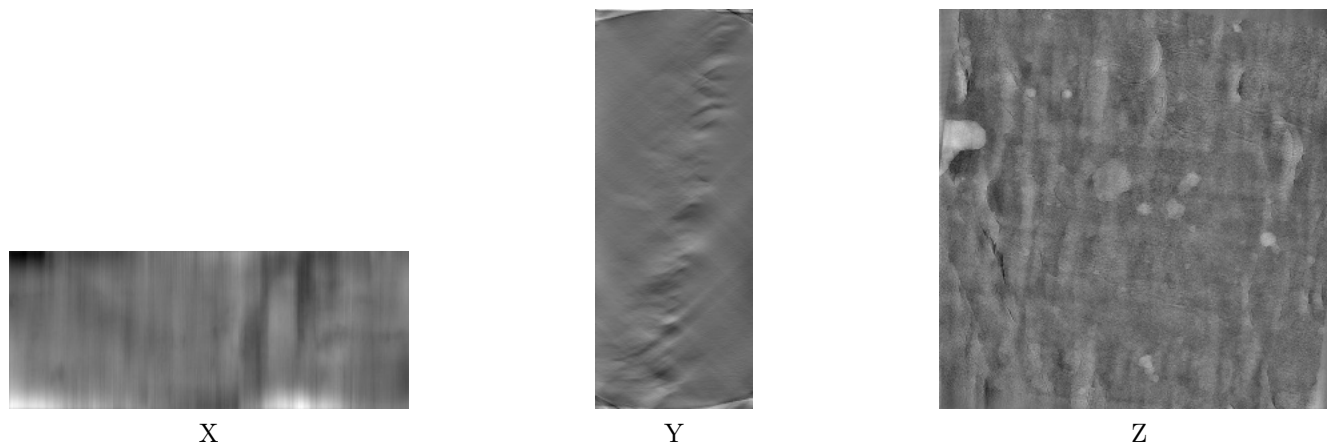
1 Experimental information

Property	Value	Source
EM reconstruction method	TOMOGRAPHY	Depositor
Imposed symmetry	Not Provided	
Number of tilted images used	2396	Depositor
Resolution determination method	Not provided	
CTF correction method	Not provided	
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	109.0	Depositor
Minimum defocus (nm)	5.0	Depositor
Maximum defocus (nm)	8.0	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum voxel value	12.668	Depositor
Minimum voxel value	-82.238	Depositor
Average voxel value	-6.707	Depositor
Voxel value standard deviation	3.285	Depositor
Recommended contour level	Not applicable	
Tomogram size (\AA)	12288.0, 12288.0, 4800.0	wwPDB
Tomogram dimensions	1024, 1024, 400	wwPDB
Tomogram angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Grid spacing (\AA)	12.0, 12.0, 12.0	Depositor

2 Tomogram visualisation [i](#)

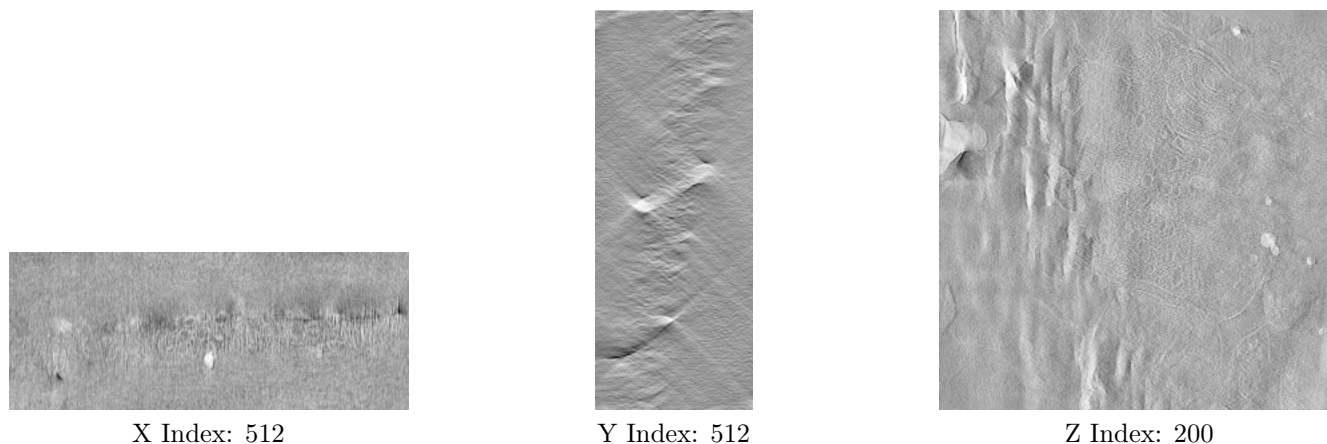
This section contains visualisations of the EMDB entry EMD-53931. These allow visual inspection of the internal detail of the tomogram and identification of artifacts.

2.1 Orthogonal projections [i](#)



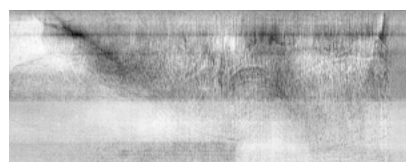
The images above show the tomogram projected in three orthogonal directions.

2.2 Central slices [i](#)



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

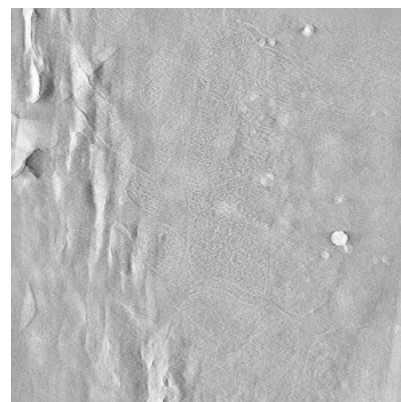
2.3 Largest variance slices [i](#)



X Index: 1022



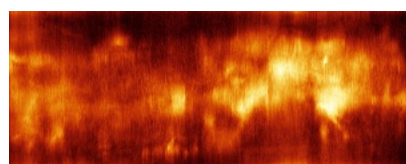
Y Index: 808



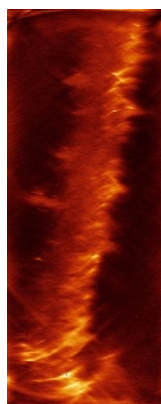
Z Index: 180

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

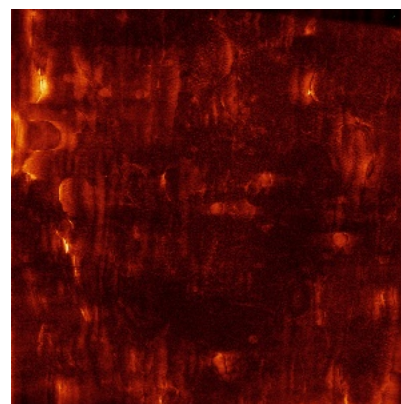
2.4 Orthogonal standard-deviation projections (False-color) [i](#)



X



Y



Z

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

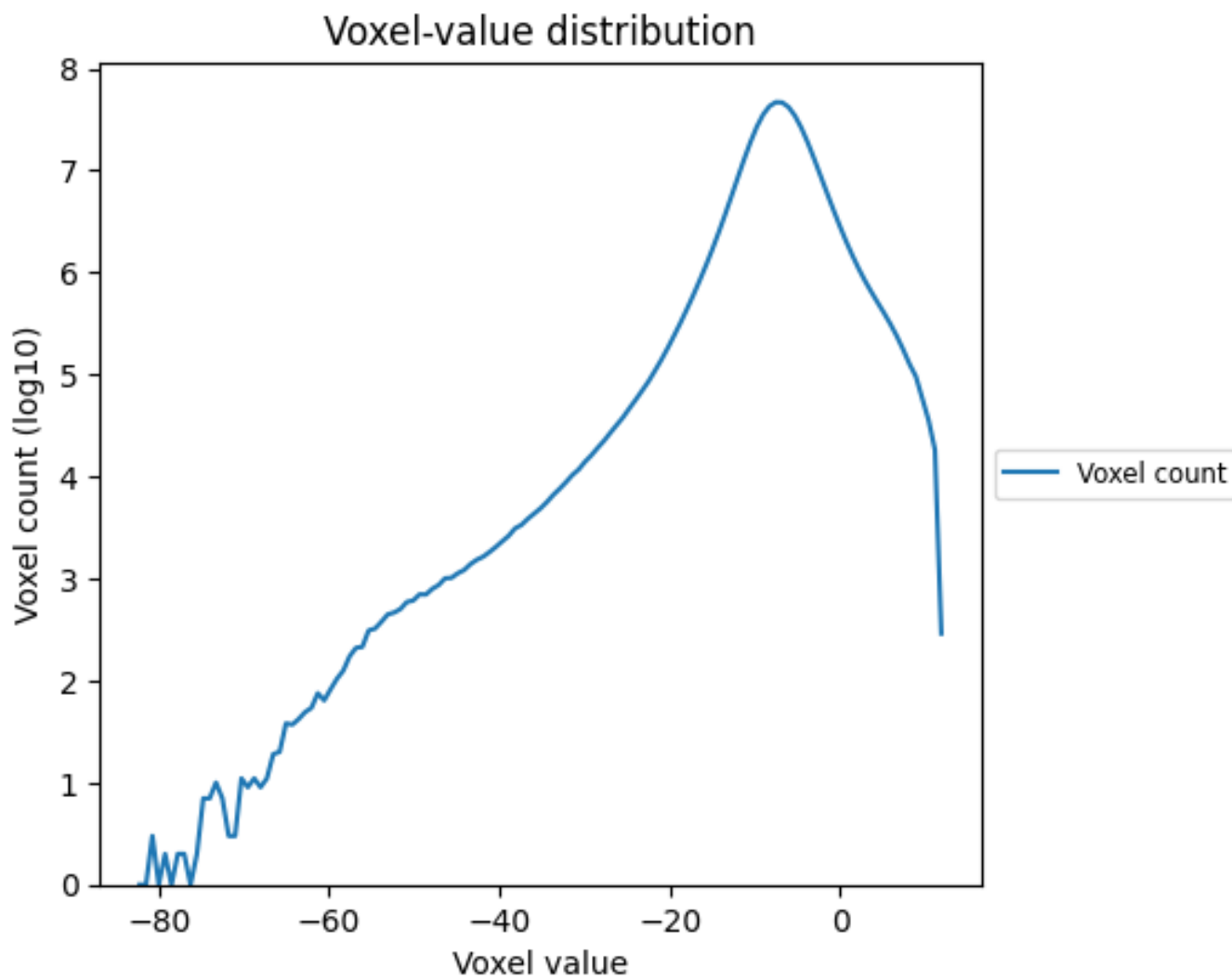
2.5 Mask visualisation [i](#)

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

3 Tomogram analysis [i](#)

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

3.1 Voxel-value distribution [i](#)



The voxel-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic.