

Resource Summary Report

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Hippocampus 3D Model

RRID:SCR_005083

Type: Tool

Proper Citation

Hippocampus 3D Model (RRID:SCR_005083)

Resource Information

URL: <http://krasnow1.gmu.edu/cn3/hippocampus3d/>

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Description: Data files for a high resolution three dimensional (3D) structure of the rat hippocampus reconstructed from histological sections. The data files (supplementary data for Ropireddy et al., *Neurosci.*, 2012 Mar 15;205:91-111) are being shared on the Windows Live cloud space provided by Microsoft. Downloadable data files include the Nissl histological images, the hippocampus layer tracings that can be visualized alone or superimposed to the corresponding Nissl images, the voxel database coordinates, and the surface rendering VRML files. * Hippocampus Nissl Images: The high resolution histological Nissl images obtained at 16 micrometer inter-slice distance for the Long-Evans rat hippocampus can be downloaded or directly viewed in a browser. This dataset consists of 230 jpeg images that cover the hippocampus from rostral to caudal poles. This image dataset is uploaded in seven parts as rar files. * Hippocampus Layer Tracings: The seven hippocampus layers "ML", "GC", "HILUS" in DG and "LM", "RAD", "PC", "OR" in CA were segmented (traced) using the Reconstruct tool which can be downloaded from Synapse web. This tool outputs all the tracings for each image in XML format. The XML tracing files for all these seven layers for each of the above Nissl images are zipped into one file and can be downloaded. * Hippocampus VoxelDB: The 3D hippocampus reconstructed is volumetrically transformed into 16 micrometer sized voxels for all the seven layers. Each voxel is reported according to multiple coordinate systems, namely in Cartesian, along the natural hippocampal dimensions, and in reference to the canonical brain planes. The voxel database file is created in ascii format. The single voxel database file was split into three rar archive files. Please note that the three rar archive files should be downloaded and decompressed in a single directory in order to obtain the single voxel data file (Hippocampus-VoxelDB.txt). * 3D Surface Renderings: This is a rar archive file with a single VRML file containing the surface rendering of DG and CA layers. This VRML file can be opened and visualized in any VRML viewer, e.g. the open source software view3dscene. * 3D Hippocampus Movie: This movie contains visualization of the 3D surface renderings of CA (blue) and DG (red) inner and outer boundaries; neuronal embeddings of DG granule and CA pyramidal dendritic arbors; potential synapses

between CA3b interneuron axon and pyramidal dendrite, and between CA2 pyramidal axon and CA pyramidal dendrites.

Abbreviations: Hippocampus 3D Model

Resource Type: data or information resource, video resource, data set, image collection

Defining Citation: [PMID:22245503](https://pubmed.ncbi.nlm.nih.gov/22245503/)

Keywords: rat, hippocampus, long evans rat, nissl, reconstruction, model, nissl staining, histology, tracing, voxel, surface rendering

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NINDS NS39600;
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Resource Name: Hippocampus 3D Model

Resource ID: SCR_005083

Alternate IDs: nlx_144141

Record Creation Time: 20220129T080228+0000

Record Last Update: 20260813T054906+0000

Ratings and Alerts

No rating or validation information has been found for Hippocampus 3D Model.

No alerts have been found for Hippocampus 3D Model.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 2 mentions in open access literature.

Listed below are recent publications. The full list is available at [dkNET](#) .

Pyka M, et al. (2014) Parametric Anatomical Modeling: a method for modeling the anatomical layout of neurons and their projections. *Frontiers in neuroanatomy*, 8, 91.

Ropiredy D, et al. (2012) Non-homogeneous stereological properties of the rat hippocampus from high-resolution 3D serial reconstruction of thin histological sections. *Neuroscience*, 205, 91.