

Resource Summary Report

Generated by ASWG on Aug 3, 2026

Synapse Web

RRID:SCR_003577

Type: Tool

Proper Citation

Synapse Web (RRID:SCR_003577)

Resource Information

URL: <http://synapses.clm.utexas.edu>

Proper Citation: Synapse Web (RRID:SCR_003577)

Description: A portal into the 3D ultrastructure of the brain providing: Anatomy of astrocytes, axons, dendrites, hippocampus, organelles, synapses; procedures of 3D reconstruction and tissue preparation; as well as an atlas of ultrastructural neurocytology (by Josef Spacek), online aligned images, and reconstructed dendrites. Synapse Web hosts an ultrastructural atlas containing more than 500 electron micrographs (added to regularly) that identify unique ultrastructural and cellular components throughout the brain. Additionally, Synapse Web has raw images, reconstructions, and quantitative data along with tutorial instructions and numerous tools for investigating the functional structure of objects that have been serial thin sectioned for electron microscopy.

Synonyms: SynapseWeb

Resource Type: image collection, narrative resource, atlas, data or information resource, training material

Keywords: electron microscopy, 3d reconstruction, neuroanatomy, astrocyte, axon, brain, cellular, dendrite, hippocampus, micrograph, microscopy, neurocytology, organelle, structure, synapse, tissue, ultrastructural, light microscopy, neuron, rat, experimental protocol, synapse structure

Funding: The Human Brain Project ;
NIDA R01 MH/DA 57351;
NIMH R01 MH/DA 57351;
NIBIB EB002170

Availability: Copyrighted, Acknowledgement required

Resource Name: Synapse Web

Resource ID: SCR_003577

Alternate IDs: nif-0000-00026

Record Creation Time: 20220129T080219+0000

Record Last Update: 20260804T043228+0000

Ratings and Alerts

No rating or validation information has been found for Synapse Web.

No alerts have been found for Synapse Web.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 69 mentions in open access literature.

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

De Introna M, et al. (2025) Chemogenetic induction of CA1 hyperexcitability triggers indistinguishable autistic traits in asymptomatic mice differing in Ambra1 expression and sex. Translational psychiatry, 15(1), 82.

Ageta-Ishihara N, et al. (2025) Septin 3 regulates memory and L-LTP-dependent extension of endoplasmic reticulum into spines. Cell reports, 44(3), 115352.

Yu F, et al. (2024) Mitochondria-ER contact sites expand during mitosis. iScience, 27(4), 109379.

Köhler S, et al. (2023) Protocol for high-throughput electron tomography exemplified on centrioles in primary human plasma cells. STAR protocols, 4(3), 102373.

Haile MT, et al. (2023) Conditional deletion of Neurexin-2 alters neuronal network activity in hippocampal circuitries and leads to spontaneous seizures. Translational psychiatry, 13(1), 97.

Li JM, et al. (2022) Swimming exercise prevents hippocampal dendritic spine changes and memory loss caused by aging: An application of a new semi-automated spine analysis software. Molecular and cellular neurosciences, 121, 103755.

Esmaili Z, et al. (2022) A stereological study reveals nanoscale-alumina induces cognitive dysfunction in mice related to hippocampal structural changes. Neurotoxicology, 91, 245.

Hagadorn MA, et al. (2021) Age-related mushroom body expansion in male sweat bees and bumble bees. Scientific reports, 11(1), 17039.

- Tan Z, et al. (2021) Tetramethylpyrazine Alleviates Behavioral and Psychological Symptoms of Dementia Through Facilitating Hippocampal Synaptic Plasticity in Rats With Chronic Cerebral Hypoperfusion. *Frontiers in neuroscience*, 15, 646537.
- Shi X, et al. (2021) Stroke subtype-dependent synapse elimination by reactive gliosis in mice. *Nature communications*, 12(1), 6943.
- Henneberger C, et al. (2020) LTP Induction Boosts Glutamate Spillover by Driving Withdrawal of Perisynaptic Astroglia. *Neuron*, 108(5), 919.
- Kim HW, et al. (2020) Differential synapse density between Purkinje cell dendritic spine and parallel fiber varicosity in the rat cerebellum among the phylogenetic lobules. *Applied microscopy*, 50(1), 6.
- Pérez-Villegas EM, et al. (2020) HERC1 Ubiquitin Ligase Is Required for Hippocampal Learning and Memory. *Frontiers in neuroanatomy*, 14, 592797.
- Eguchi K, et al. (2020) Advantages of Acute Brain Slices Prepared at Physiological Temperature in the Characterization of Synaptic Functions. *Frontiers in cellular neuroscience*, 14, 63.
- Yu M, et al. (2019) Gallic acid disruption of A β 1-42 aggregation rescues cognitive decline of APP/PS1 double transgenic mouse. *Neurobiology of disease*, 124, 67.
- Kashiwagi Y, et al. (2019) Computational geometry analysis of dendritic spines by structured illumination microscopy. *Nature communications*, 10(1), 1285.
- Garcia GC, et al. (2019) Mitochondrial morphology provides a mechanism for energy buffering at synapses. *Scientific reports*, 9(1), 18306.
- Krings M, et al. (2019) EvoDevo in owl ear asymmetry-The little owl (*Athene noctua*). *Zoology (Jena, Germany)*, 132, 1.
- Gire DH, et al. (2019) Balancing Extrasynaptic Excitation and Synaptic Inhibition within Olfactory Bulb Glomeruli. *eNeuro*, 6(4).
- Gutova M, et al. (2019) Quantitative Evaluation of Intraventricular Delivery of Therapeutic Neural Stem Cells to Orthotopic Glioma. *Frontiers in oncology*, 9, 68.