

Resource Summary Report

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ModelDB

RRID:SCR_007271

Type: Tool

Proper Citation

ModelDB (RRID:SCR_007271)

Resource Information

URL: <http://senselab.med.yale.edu/modeldb/>

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Description: Curated database of published models so that they can be openly accessed, downloaded, and tested to support computational neuroscience. Provides accessible location for storing and efficiently retrieving computational neuroscience models. Coupled with NeuronDB. Models can be coded in any language for any environment. Model code can be viewed before downloading and browsers can be set to auto-launch the models. The model source code has to be available from publicly accessible online repository or WWW site. Original source code is used to generate simulation results from which authors derived their published insights and conclusions.

Abbreviations: ModelDB

Synonyms: Model_DB, Model Database, Model DB, Model-DB

Resource Type: service resource, database, storage service resource, data repository, data or information resource

Defining Citation: [PMID:15218350](#), [PMID:15055399](#), [PMID:8930855](#)

Keywords: repository, collection, network, neuron, computational, neuroscience, model, simulation, neural, data

Funding: NIMH ;
NINDS ;
NCI ;
Human Brain Project ;
NIDCD P01 DC004732;
NIDCD R01 DC009977

Availability: Free, Freely available, Acknowledgement requested

Resource Name: ModelDB

Resource ID: SCR_007271

Alternate IDs: nif-0000-00004, r3d100011330

Alternate URLs: <https://doi.org/10.17616/R3P61F>

Record Creation Time: 20220129T080240+0000

Record Last Update: 20260728T043247+0000

Ratings and Alerts

No rating or validation information has been found for ModelDB.

No alerts have been found for ModelDB.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 304 mentions in open access literature.

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

Mäki-Marttunen T, et al. (2025) Pre- and Post-synaptic Mechanisms of Neuronal Inhibition Assessed Through Biochemically Detailed Modeling of GABAB Receptor Signaling. The Journal of neuroscience : the official journal of the Society for Neuroscience, 45(36).

Eguchi Y, et al. (2025) Kcnq (Kv7) channels exhibit frequency-dependent responses via partial inductor-like gating dynamics. Communications biology, 8(1), 866.

Stojanovic S, et al. (2025) Rebound Bursting Selectively Enables Fast Dynamics in Dopamine Midbrain Neurons Projecting to the Dorsolateral Striatum. The Journal of neuroscience : the official journal of the Society for Neuroscience, 45(44).

Castelfranco AM, et al. (2025) Mitochondria delay action potential propagation. Communications biology, 8(1), 1341.

Miller JA, et al. (2025) Incorporating the thermodynamic effects of temperature and pressure on modeling neuronal gating kinetics. PloS one, 20(10), e0333592.

Manara E, et al. (2025) In silico investigation of the puzzling dopamine effects on excitability and synaptic plasticity in hippocampal CA1 pyramidal neurons. Scientific reports, 15(1), 32822.

Garcia JD, et al. (2025) Differential roles of NaV1.2 and NaV1.6 in neocortical pyramidal cell excitability. eLife, 14.

Park P, et al. (2025) Dendritic excitations govern back-propagation via a spike-rate accelerometer. *Nature communications*, 16(1), 1333.

Bou Diab Z, et al. (2025) Biophysical network modeling of temporal and stereotyped sequence propagation of neural activity in the premotor nucleus HVC. *eLife*, 14.

Eissa A, et al. (2025) Computational modelling of novelty detection in the mismatch negativity protocols and its impairments in schizophrenia. *bioRxiv : the preprint server for biology*.

Takács V, et al. (2024) Synaptic and dendritic architecture of different types of hippocampal somatostatin interneurons. *PLoS biology*, 22(3), e3002539.

Ibañez S, et al. (2024) Myelin dystrophy impairs signal transmission and working memory in a multiscale model of the aging prefrontal cortex. *eLife*, 12.

Kamiya H, et al. (2024) Ectopic burst induced by blockade of axonal potassium channels on the mouse hippocampal mossy fiber. *Frontiers in cellular neuroscience*, 18, 1434165.

Tomko M, et al. (2024) A voltage-based Event-Timing-Dependent Plasticity rule accounts for LTP subthreshold and suprathreshold for dendritic spikes in CA1 pyramidal neurons. *Journal of computational neuroscience*, 52(2), 125.

Guarina L, et al. (2024) SanPy: Software for the analysis and visualization of whole-cell current-clamp recordings. *Biophysical journal*, 123(7), 759.

Blömer LA, et al. (2024) Kinetics and functional consequences of BK channels activation by N-type Ca²⁺ channels in the dendrite of mouse neocortical layer-5 pyramidal neurons. *Frontiers in cellular neuroscience*, 18, 1353895.

Kan P, et al. (2024) Computational modeling to study the impact of changes in Nav1.8 sodium channel on neuropathic pain. *Frontiers in computational neuroscience*, 18, 1327986.

Kamiya H, et al. (2024) Modeling analysis of depolarization-assisted afterdischarge in hippocampal mossy fibers. *Frontiers in neural circuits*, 18, 1505204.

Cirtala G, et al. (2024) Branch-specific clustered parallel fiber input controls dendritic computation in Purkinje cells. *iScience*, 27(9), 110756.

Diekman CO, et al. (2024) COVID-19 and silent hypoxemia in a minimal closed-loop model of the respiratory rhythm generator. *Biological cybernetics*, 118(3-4), 145.