

Resource Summary Report

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Virtual brain

RRID:SCR_002249

Type: Tool

Proper Citation

Virtual brain (RRID:SCR_002249)

Resource Information

URL: <http://www.thevirtualbrain.org/>

Proper Citation: Virtual brain (RRID:SCR_002249)

Description: Simulation software for modeling the entire human brain by combining structural and functional data from empirical neuroimaging data. It can generate local field potentials, EEG, MEG and fMRI BOLD data based on neural mass models. The user can also modify the model parameters to match clinical conditions from focal lesions or degenerative disorders.

Abbreviations: tvb

Synonyms: thevirtualbrain.org, The Virtual Brain, thevirtualbrain

Resource Type: software application, simulation software, software resource

Defining Citation: [PMID:23442172](#), [PMID:23774395](#)

Keywords: dti, simulation, modeling, brain

Funding: James S. McDonnell Foundation

Availability: Free, Freely available

Resource Name: Virtual brain

Resource ID: SCR_002249

Alternate IDs: nlx_155567

Alternate URLs: <http://www.nitrc.org/projects/tvb>

License: GNU General Public License v2

Record Creation Time: 20220129T080212+0000

Record Last Update: 20260728T043129+0000

Ratings and Alerts

No rating or validation information has been found for Virtual brain.

No alerts have been found for Virtual brain.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 39 mentions in open access literature.

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

Milinkovic B, et al. (2025) Capturing the emergent dynamical structure in biophysical neural models. PLoS computational biology, 21(5), e1012572.

Stefanovski L, et al. (2025) An Interactive Brain Atlas of Knowledge. bioRxiv : the preprint server for biology.

Suárez LE, et al. (2024) Connectome-based reservoir computing with the conn2res toolbox. Nature communications, 15(1), 656.

Müller V, et al. (2024) Hyper-brain hyper-frequency network topology dynamics when playing guitar in quartet. Frontiers in human neuroscience, 18, 1416667.

Stasinski J, et al. (2024) Homeodynamic feedback inhibition control in whole-brain simulations. PLoS computational biology, 20(12), e1012595.

Dainauskas JJ, et al. (2023) Altered synaptic plasticity at hippocampal CA1-CA3 synapses in Alzheimer's disease: integration of amyloid precursor protein intracellular domain and amyloid beta effects into computational models. Frontiers in computational neuroscience, 17, 1305169.

Lorents A, et al. (2023) Human Brain Project Partnering Projects Meeting: Status Quo and Outlook. eNeuro, 10(9).

Franceschiello B, et al. (2022) A Roadmap for Computational Modelling of M/EEG. Brain topography, 35(1), 1.

Eriksson O, et al. (2022) Combining hypothesis- and data-driven neuroscience modeling in FAIR workflows. eLife, 11.

Stefanovski L, et al. (2021) Bridging Scales in Alzheimer's Disease: Biological Framework for Brain Simulation With The Virtual Brain. *Frontiers in neuroinformatics*, 15, 630172.

Deco G, et al. (2021) Rare long-range cortical connections enhance human information processing. *Current biology : CB*, 31(20), 4436.

Hashemi M, et al. (2021) On the influence of prior information evaluated by fully Bayesian criteria in a personalized whole-brain model of epilepsy spread. *PLoS computational biology*, 17(7), e1009129.

Tao Y, et al. (2021) Investigating the network consequences of focal brain lesions through comparisons of real and simulated lesions. *Scientific reports*, 11(1), 2213.

Spiegler A, et al. (2020) In silico exploration of mouse brain dynamics by focal stimulation reflects the organization of functional networks and sensory processing. *Network neuroscience (Cambridge, Mass.)*, 4(3), 807.

Ryan JD, et al. (2020) Modeling the influence of the hippocampal memory system on the oculomotor system. *Network neuroscience (Cambridge, Mass.)*, 4(1), 217.

Courtiol J, et al. (2020) Dynamical Mechanisms of Interictal Resting-State Functional Connectivity in Epilepsy. *The Journal of neuroscience : the official journal of the Society for Neuroscience*, 40(29), 5572.

Griffiths JD, et al. (2020) A Connectome-Based, Corticothalamic Model of State- and Stimulation-Dependent Modulation of Rhythmic Neural Activity and Connectivity. *Frontiers in computational neuroscience*, 14, 575143.

Petkoski S, et al. (2019) Transmission time delays organize the brain network synchronization. *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences*, 377(2153), 20180132.

Stefanovski L, et al. (2019) Linking Molecular Pathways and Large-Scale Computational Modeling to Assess Candidate Disease Mechanisms and Pharmacodynamics in Alzheimer's Disease. *Frontiers in computational neuroscience*, 13, 54.

Zimmermann J, et al. (2018) Differentiation of Alzheimer's disease based on local and global parameters in personalized Virtual Brain models. *NeuroImage. Clinical*, 19, 240.