Resource Summary Report

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NSR Physiome Project

RRID:SCR_007379
Type: Tool

Proper Citation

NSR Physiome Project (RRID:SCR_007379)

Resource Information

URL: http://nsr.bioeng.washington.edu/

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Description: Database of physiological, pharmacological, and pathological information on humans and other organisms and integration through computational modeling. Models include everything from diagrammatic schema, suggesting relationships among elements composing a system, to fully quantitative, computational models describing the behavior of physiological systems and an organism''s response to environmental change. Each mathematical model is an internally self-consistent summary of available information, and thereby defines a working hypothesis about how a system operates. Predictions from such models are subject to test, with new results leading to new models.BR /> A Tool developed for the NSR Physiome project is JSim, an open source, free software. JSim is a Java-based simulation system for building quantitative numeric models and analyzing them with respect to experimental reference data. JSim''s primary focus is in physiology and biomedicine, however its computational engine is quite general and applicable to a wide range of scientific domains. JSim models may intermix ODEs, PDEs, implicit equations, integrals, summations, discrete events and procedural code as appropriate. JSim''s model compiler can automatically insert conversion factors for compatible physical units as well as detect and reject unit unbalanced equations. JSim also imports the SBML and CellML model archival formats. All JSim models are open source. Goals of the Physiome Project: - To develop and database observations of physiological phenomenon and interpret these in terms of mechanism (a fundamentally reductionist goal). - To integrate experimental information into quantitative descriptions of the functioning of humans and other organisms (modern integrative biology glued together via modeling). - To disseminate experimental data and integrative models for teaching and research. - To foster collaboration amongst investigators worldwide, to speed up the discovery of how biological systems work. - To determine the most effective targets (molecules or systems) for therapy, either pharmaceutic or genomic. - To provide information for the design of tissue-engineered, biocompatible implants.

Abbreviations: NSR Physiome Project

Synonyms: National Simulation Resource Physiome Project

Resource Type: software application, professional program, topical portal, data or information resource, portal, software resource, training resource, simulation software

Keywords: physiome, computational modeling, cell, organ, organism, human, model, physiological, pharmacological, pathological, model repository, sbml, cellml, biophysics, biochemistry, database, proteome, jsim simulation analysis system, data analysis tool, parameter optimization tool, integrating biological system

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Resource Name: NSR Physiome Project

Resource ID: SCR_007379

Alternate IDs: nif-0000-00532

Record Creation Time: 20220129T080241+0000

Record Last Update: 20250519T203508+0000

Ratings and Alerts

No rating or validation information has been found for NSR Physiome Project.

No alerts have been found for NSR Physiome Project.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 3 mentions in open access literature.

Listed below are recent publications. The full list is available at NIF.

Morton EL, et al. (2019) Transcriptional Circuit Fragility Influences HIV Proviral Fate. Cell reports, 27(1), 154.

Munro PD, et al. (2016) Aspects of protein-DNA interactions: a review of quantitative thermodynamic theory for modelling synthetic circuits utilising LacI and CI repressors, IPTG and the reporter gene lacZ. Biophysical reviews, 8(4), 331.

Vinnakota K, et al. (2006) Dynamics of muscle glycogenolysis modeled with pH time course computation and pH-dependent reaction equilibria and enzyme kinetics. Biophysical journal, 91(4), 1264.