Introducing the Center for Reproducible Biomedical Modeling
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In a few months, we hope to inaugurate a new NIBIB center that should be of interest to the MSM consortium. This center will be the Center for Reproducible Biomedical Modeling. The goal of the center is to encourage best practices in biomedical modeling from conception to publication. For example, many biomodels are still described in ad hoc, irreproducible formats, most biomodels are still published without sufficient metadata, and few published models are composable or reproducible.

To enable more predictive models, the Center for Reproducible Biomodeling Modeling aims to enhance the reproducibility of every aspect of biomodeling from model conception to publication. This will include developing new technologies for reproducibly aggregating data for modeling, new technologies for reproducibly constructing models from data and assumptions, a new pluggable simulation system that can simulate any biomodel, a new format for describing model validations and which model predictions have been validated, a new format for reproducibly describing visualizations of models and simulations, and new tools for storing and reproducibly analyzing simulation results.

To ensure that researchers use these tools to conduct modeling reproducibly, the center will also develop user-friendly interfaces to these tools. In addition, the center will organize meetings and tutorials to teach modelers about the importance of reproducibility and train researchers to conduct modeling reproducibly; organize DREAM challenges to compare modeling methods; and provide annotation services to help journal authors, reviewers, and editors publish reproducible models. The center will work with a wide range of stakeholders covering a variety of biological problems that will permit us to be responsive to the needs of the community. Although focused initially on systems biology, the center will also reach out and assist communities in other modeling domains, particular neurophysiology, and multicellular systems.

The center is a collaboration among Herbert Sauro (University of Washington; technology integration and outreach); Jonathan Karr and Arthur Goldberg (Icahn School of Medicine at Mount Sinai; data integration and model construction); John Gennari, Dan Cook, and Max Neal (University of Washington; data, model, and simulation annotation); Ion Moraru, James Schaff, and Michael Blinov (University of Connecticut Health Center; simulation, visualization, and analysis), and David Nickerson (University of Auckland; annotation and verification).

More information: http://reproduciblebiomodels.org.