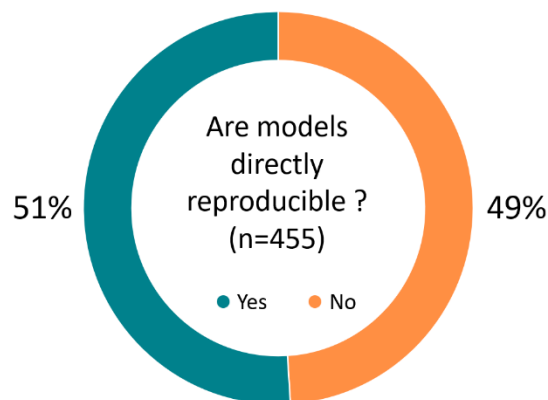


QSPeed - Streamlining QSP Modelling with Curated Building-Blocks and Tailored Support

Challenge

- Quantitative Systems Pharmacology (QSP) modelling is a computational approach that integrates mathematical models, defined by systems of ordinary differential equations (ODE), with biological knowledge to understand the complex interactions between drugs, diseases, and patients, aiding in drug development and personalized medicine.
- Quantitative parameter values needed for QSP models are scattered across literature and are laborious to mine.
- The credibility of computational biology research is compromised by an ongoing reproducibility crisis resulting from errors or lack of information in the manuscript, including changes in reference data and/or formats, software versions, and missing essential codes or methodology.
- A recent study [1] showed that about half of the published ODE models cannot be directly reproduced. When using existing models from literature, the risk of working with an incorrect model is very high.



Technology

BioModels [2] is one of the largest open-source databases of quantitative mathematical models where models are manually curated and semantically enriched. Our expert curators meticulously evaluate ODE, verifying their accuracy and identifying any errors or discrepancies in the parameters. Simulation results of each model are reproduced, ensuring trustworthiness and robustness. Our curators also perform data mining across literature to enhance your QSP model. Instead of spending time and resources on reproduction and parameter collection, our curated models and parameter collection allow you to focus on application e.g. to calculate dosage regimes, to study enzyme kinetics, drug distribution, or to explore pharmacometrics in areas like pharmacokinetics (PK) or pharmacodynamics (PD), and QSP. Our highly accurate curation services, save you valuable time and effort, optimize your workflows, and prevent the costly setbacks that can arise from working with erroneous models.

Commercial Opportunity

We provide professional ODE curation services and perform expert mining of quantitative model parameters to deliver validated building blocks for your specific QSP modelling needs.

Contact us for a quote. Our services are available to everyone, and we offer special rates for academics and SMEs.

Further Reading

- [1] [Tiwari et al.](#), 2021, Molecular system Biology “Reproducibility in systems biology modelling”
- [2] [Malik-Sheriff et al.](#), 2020, Nucl Acids Res “BioModels-15 years of sharing computational models in life science”
- [3] [Tiwari et al.](#), 2023, BioRxiv BioModelsML: Building a FAIR and reproducible collection of machine learning models in life sciences and medicine for easy reuse”

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