Open Systems Pharmacology: An open source platform for joint development, exchange, review, qualification, and application of state-of-the-art tools and models for PBPK and Systems Pharmacology

Martin Hobe on behalf of Open Systems Pharmacology [www.open-systems-pharmacology.org][1]

Objectives: Open Systems Pharmacology [1] envisions to provide robust and reliable, easy-to-use modeling & simulation tools, processes and models for pharmaceutical and other life-sciences applications qualified and accepted by a scientific community from academia, regulatory agencies and industry – available and open to everyone. We promote the idea of pre-competitive open collaboration for the advancement of modeling & simulation sciences in pharmaceutical and life science.

Methods: Open Systems Pharmacology makes formerly commercial software tools PK-Sim® and MoBi® available as freeware under the GPLv2 License [2]. All source code is publicly available on GitHub (github.com)[3]. A number of sub-pages have been established for easier navigation, orientation and exchange.

Results: Besides providing open access to the abovementioned professional tools, Open Systems Pharmacology comprises a model repository for readily accessible mechanistic models of compounds and systems (e.g. the physiologically-based whole-body model of glucose-insulin-glucagon regulation based on the model developed at Bayer and first published in [4]). In an attached forum, exchange on systems pharmacology topics in general as well as discussion of ideas specifically dealing with additions and contributions to the community and consideration of technical challenges takes place.

Conclusions: Open Systems Pharmacology makes powerful and flexible tools for PBPK and systems pharmacology modeling available open source under GPLv2. We invite everyone in the field of Systems Pharmacology, be it in academia, industry or regulatory bodies, to use the platform. Active participation of computer and modeling & simulation scientists in the further development of the modeling & simulation platform, the incorporated systems models, processes for their qualification and application is encouraged and highly welcome. Please follow the community’s activities in this GitHub project [1].