

DDMoRe launches new modelling languages

Leiden, the Netherlands, 20th December 2013 – The IMI Drug Disease Model Resources ([DDMoRe](#)) consortium is launching modelling languages to enable quantitative decision making across all stages of pharmaceutical drug development. This first release includes a “universal” Modelling Description Language ([MDL](#)) together with its Integrated Development Environment ([MDL-IDE](#)) and a new exchange language standard, the Pharmacometrics Markup Language ([PharmML](#)). MDL and PharmML will be the backbone of the forthcoming DDMoRe open-source model repository and interoperability framework. DDMoRe envisages that the standards and tools developed over the course of the project will facilitate future collaborative drug and disease Modelling and Simulation (M&S) work.

MDL is a “universal” human orientated M&S language to describe models and related tasks. MDL has been designed to be easily read and written by scientists. The MDL is independent of the targeted modelling software and uses discrete objects to separate data, parameter, model and task descriptions. This supports re-usability and interchange of the objects defining the modelling task. Analysis flexibility will be enhanced by allowing combinations of existing modelling objects. These discrete objects will also facilitate use of the forthcoming DDMoRe model repository.

The **MDL-IDE** provides the framework where the files containing MDL code can be created and edited. It offers a user-friendly and customisable interface including syntax highlighting, assistance in model/object formatting and simultaneous development of multiple models. This release supports conversion of MDL objects into the equivalent NM-TRAN control stream. To show this functionality a set of use cases is provided, many of which produce NM-TRAN code that is directly executable within NONMEM.

To enable the exchange and reuse of models/objects, annotations, and associated tasks, DDMoRe has developed a mark-up language, the **PharmML**. This first release supports non-linear mixed effect models as used in analysis and simulation of continuous longitudinal population data. Future releases will support discrete data models, Bayesian inference methods and delay differential equations.

User feedback request

MDL, MDL-IDE, and PharmML are under active development and these first releases are intended to gather feedback from the broader user community outside the DDMoRe consortium. Please provide feedback on your experiences and suggestions for enhancements on www.ddmore.eu/forum.

About DDMoRe

The DDMoRe consortium is an IMI project, involving 26 partners (drawn from the Pharmaceutical Industry, Academia and Small to Medium Enterprises) with the aim of facilitating Model-Based Drug Development (MBDD) approaches via development of a new M&S platform and model library. MBDD is widely accepted as a vital approach in understanding patients' drug-related benefit and risk. However, the current path to model-based knowledge integration is hampered by a lack of common tools, languages and ontologies for M&S, with limited or time consuming access to stored or evolving information. To address those concerns DDMoRe was formed as a 5-years IMI project (www.imi.europa.eu) in 2011.

DDMoRe aims at qualifying, supporting and maintaining a streamlined platform that is robust, auditable, flexible and scalable. DDMoRe encourages good data analytical practice and promotes to simplify the re-use of previous work to support timely quantitative decision making in drug development.

So far, key achievements include the release of MDL, MDL-IDE, and PharmML and an encoding of published models in core therapeutic areas: diabetes, oncology, CNS, infectious and inflammatory diseases. A first public instance of the model repository will be theme of a next release note in Q1 2014.

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