Drug Disease Model Resources (DDMoRe)

Research Areas

- **Tool Development**
  - Prediction
- **Data-Sharing Enabler**

At a Glance

- **Status:** Active Consortium
- **Year Launched:** 2011
- **Initiating Organization:** Innovative Medicines Initiative
- **Initiator Type:** Government
- **Location:** Europe

Abstract

The Drug Disease Model Resources (DDMoRe) project is part of the Innovative Medicines Initiative (IMI), a collaborative effort between the European Union and the European Federation of Pharmaceutical Industries and Associations (EFPIA). DDMoRe aims to create common definition language for data, models, and workflows, along with an ontology-based standard for storage and transfer of models and associated metadata. The resulting software, programs, and code will enable development of an open-source interoperability framework, a drug and disease model library, and comprehensive training to advance the future of model-based drug discovery (MBDD).

Mission

DDMoRe’s main objectives are as follows:

- Enable efficient exchange and integration of modeling activities
- Outputs across software tools, disciplines, and departments within and among organizations
- Provide standards applicable to all areas of modeling and simulation, appropriate for adoption and use by all relevant domain stakeholders
• Develop an open, publicly available, free-to-use model repository, based on developed standards, to promote the re-use of models
• Potentially evolve the model repository into a global reference for model-based efforts in the therapeutic areas of diabetes, oncology, and other diseases
• Provide support for education and training in drug/disease modeling and simulation

Consortium History


November 2013: DDMoRe released three items:

• PharmML (Pharmacometrics Markup Language), a new standard for encoding of models, associated tasks, and their annotation as used in pharmacometrics

• Modeling Description Language (MDL), a human-writeable and -readable language to express the information required to describe pharmacometric models and tasks using these models

• MDL Integrated Development Environment (MDL-IDE), which provides the framework within which files containing MDL code can be created and edited

2014: DDMoRe released Simulx, an R function for easily computing predictions and simulating data from the Mixtran and PharmML models.

Structure & Governance

DDMoRe has been divided into 10 work projects. The early work-projects focused on developing the software platform, incorporating the models, and developing the coding language. The current work projects focus on turning the results of the early work projects into an outward-facing format and developing educational and training resources to put it to use.

DDMoRe has an Advisory Board and working groups on ethics, intellectual property, and reporting to
the IMI Joint Undertaking. The activities of these various bodies are coordinated by work project 10, which is tasked with providing support for the smooth management of the project.

## Financing

The five-year DDMoRe project has total funding of €21.1 million Euros (US$28.8 million). The largest contributor to funding is EFPIA, with an in-kind contribution of €9.8 million. IMI contributed €9.6 million, and other funding sources contributed €1.7 million.

## Intellectual Property

All IMI projects, such as DDMoRe, operate under the same umbrella intellectual property (IP) policy. Any IP discovered as a result of work in the collaboration is owned by the participating institution that made the discovery (or if the discovery was made jointly, there is joint ownership). Other participants have access rights to the generated IP during and after the project for research use, and participant owners have the right to license their IP and associated obligations to other parties, including to affiliated entities. Third parties may request access rights, which do not involve the ability to sublicense without receiving authorization from the IP-owning participant.

## Data Sharing

DDMoRe will establish an open-source interoperability framework and a drug and disease laboratory; deliverables are intended to be publicly used. In keeping with IMI policy, the project has up to one year after completion to disseminate IP or data created by the project.

## Impact/Accomplishment

DDMoRe has developed and published PharmML, MDL, MDL-IDE, and Simulx. The model repository and framework are also freely accessible and downloadable, along with the relevant training material.
Four papers have been published on behalf of DDMoRe, and 15 papers supported by DDMoRe have also been published.

**Links/Social Media Feed**

- **Homepage**: [http://www.ddmore.eu/](http://www.ddmore.eu/)
- **Twitter**: [https://twitter.com/ddmore_IMI](https://twitter.com/ddmore_IMI)
- **LinkedIn**: [https://www.linkedin.com/groups/Drug-Disease-Model-Resources-5169820?trk=my_groups-b-grp-v](https://www.linkedin.com/groups/Drug-Disease-Model-Resources-5169820?trk=my_groups-b-grp-v)
- **Other website**: [http://www.imi.europa.eu/content/ddmore](http://www.imi.europa.eu/content/ddmore)

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