Newsletter

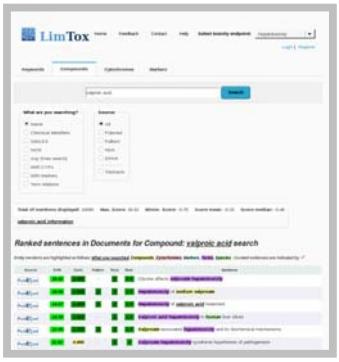
Issue Num. 11 - June 2014

In This Issue

Have a look at the LimTox text mining system

LimTox *extracts associations between compounds and hepatotoxicity, at various levels of granularity and evidence types, through combination of heterogeneous complementary strategies from term co-mention, rules, and patterns to machine learning based text classification. The system ranks associations, all inspired on an initial analysis of information contained in various data resources related to toxicology (databases, literature, EPARs and a small sample of printed EFPIA toxicological reports provided by eTOX consortium partners).*

Check tutorial videos.



PROJECT NEWS

eTOX presented at REMA, Madrid, Spain

On April 1st, eTOX was presented at VII REMA meeting held by GSK (Spanish network for the development of alternative methods on animals experimentation). The presentation aroused great interest and raised many questions about project results from local pharmaceutical industry, academia and representatives of the Spanish drug regulatory agency.

10th eTOX Consortium meeting, Paris, France

The meeting was hosted by Servier in May 6th and 7th. Key topics of the meeting were the toxicological text mining tool **LimTox** developed within the consortium and the hands-on session with the next version of eTOXsys with enhanced functionality for querying the database.

EoI (iPiE) agrees on close collaboration

On June 19th, the winning expression of interest in the IMI call on Eco Risk Prediction met in Brussels. During the meeting the overlap and the synergies with eTOX were discussed and it was agreed that a close collaboration for database development, predictive systems and IP issues should be assured during the preparation of the full proposal.

KEYNOTE

eTOX and Open PHACTS - multiple possibilities for collaboration

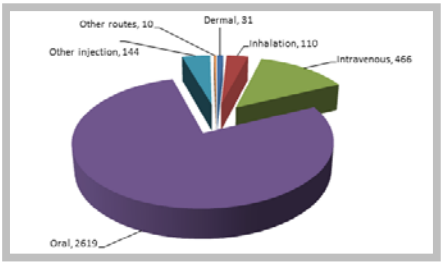
Message from Gerhard Ecker, Unversity of Vienna

Within the past decade the way computational drug design is conducted has changed dramatically. *The availability of high performance computing on the desktop, the establishment of cloud and grid services, and the gradual move of cheminformatics to open access, pushed the whole discipline forward*. However, the highest impact might come from the availability of large amounts of data among public databases (ie., ChEMBL, PubChem, ChemSpider), as well as from semantic integration of public data sources, such us the Open PHACTS Discovery Platform (OPS). OPS integrates disperse databases and interlinks their data, allowing data access in a stable and rigorous infrastructure, with data provenance easily assessed for data quality evaluation. However, most public databases compile data from literature and are thus heterogeneous in their coverage, and assay descriptions are not uniform; this hampers the direct use of the data extracted from OPS for computational modelling. In parallel, the **eTOX**database has been carefully curated and highly standardised, using GLP high quality data, but it has yet to be proven whether its growing number of compounds covers the chemical space needed for constructing breakthrough models of in vivo toxicity. This poses the question about the possibility of joining forces and taking advantage of both integration exercises. A first step has already been performed with the joint development of **Collector**, a tool that uses data from both projects to build predictive models. Further possibilities might be to incorporate the publicly available data from **eTOX** into OPS and, *vice versa*, to take the confidential part of the **eTOX**database as one of the use cases in Open PHACTS for handling proprietary data. In terms of sustainability, Open PHACTS chose a Foundation solution, as a not for profit, member-based company with limited liability, also here synergies may be devised with **eTOX** in the post-IMI funding phase for mutual strengthening in the long term.

ACHIEVEMENTS

- **Initiating a Regulatory Dialogue with EMA's Innovation Task Force**. Early April, the Executive Committee presented the use cases envisaged (for both the **eTOX database** and **eTOXsys**) to European Medicine Agency members with the purpose of strengthening interaction with the European regulatory authorities and the **eTOX** consortium. In this meeting, the EMA requested to produce a mock model to continue the discussion, and agreed to provide scientific advice for the next steps of **eTOX** project.
- Early April 2014, Lhasa Limited launched the **eighth release of the Vitic Nexus eTOX database,** with 1,214 substances (477 as confidential) linked to 3,393 study records contributed by all EFPIA partners of the **eTOX** consortium. In addition, it contains data from ChEMBL database (204,273 substances and 666,974 records).
- Early May 2014, Molecular Networks presented the renewed functional query interface for **eTOXsys** which displays chemistry or toxicity or combined searches in a single step, shows a more interactive query builder for searches (by study design fields, by pathology terms aggregated by the **eTOX** ontology, by combination of effects filters, or running hypothesis-driven queries). Currently, the new API 2.0 supports both endpoints and metabolites predictions.

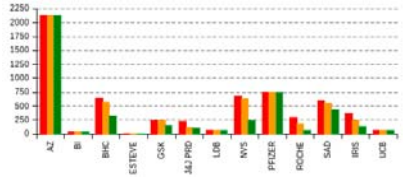
Vitic Nexus eTOX database 2014.1
Route of administration



eTOXsys – Database browser

REPORT-O-METER 6142

Currently, 4551 reports of the 6142 cleared for sharing within the consortium have finished the extraction data process and are available in the **Vitic Nexus eTOX database.**



Cleared Reports submitted to CROs or in-house facilities for data extraction
Extracted Reports with processing by CROs or in-house facilities completed
Vitic Reports with data available at Vitic Nexus database

PUBLICATIONS

A full list of publications is available on http://www.etoxproject.eu

- ARTICLE-(FIMIM/UNIVIE): Applicability Domain Analysis (ADAN): A Robust Method for Assessing the Reliability of Drug Property Predictions. Carrió P, Pinto M, Ecker G, Sanz F, Pastor M. *J Chem Inf Model* 2014, 54 (5):1500-11.
- ARTICLE-(UNIVIE): Computational models for predicting the interaction with ABC transporters. Pinto M, Digles D, Ecker GF. *Drug Disc Today.* 2014, 12: e69-e77.

UPCOMING EVENTS

- **11-12.07.14 |** Bio-Ontologies SIG (Info: http://www.bio-ontologies.org.uk/call-for-participation) and Phenotype Day (Info: http://phenoday2014.bio-lark.org/). Boston (USA).
- **24-28.08.2014 |** Humane Science in the 21st Century. 9th World Congress on Alternatives and Animal Use in the Life Sciences. Prague (Czech Republic). Info: http:// http://www.wc9prague.org/. Invited presentation on eTOX and its contribution to 3R.
- **31.08-04.09.14 |** 20th EuroQSAR. St Petersburg (Russia). Info: http://goo.gl/iFSWWD
- **08-10.09.14 |** 1st Symposium on Information Management and Big Data. Cusco (Peru). Info: http://www.lirmm.fr/simbig2014/
- **07-11.09.14 |** EFMC-ISMC 2014. XXIII International Symposium on Medicinal Chemistry. Lisboa (Portugal). Info: http://www.efmc-ismc.org