

Major achievements of SEURAT-1 in alternative safety assessment presented at EUROTOX 2015 and in upcoming Symposium on 4 December 2015

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A major European research initiative to lay the foundations for assessing chemical safety without using animals is counting its successes, as it nears completion. Over the past five years, SEURAT-1, a 50 M€ EU project on “safety assessment ultimately replacing animal testing” has seen scientists from 70 institutions work closely together to provide advanced alternative test systems, computer models, and public databases on chemical toxicity. They have brought all of these together to form a testing platform that is being put through its paces in a series of case studies.

SEURAT-1 exhibited its results and launched the fifth volume of the SEURAT-1 Book at one of the key international Toxicology events EUROTOX 2015 on 13-16 September 2015 in Porto, Portugal. Its exhibition stand was one of many supporting alternative methods to animal testing. Maurice Whelan, head of the Systems Toxicology Unit at the European Commission's Joint Research Centre (JRC) and the EU Reference Laboratory for Alternatives to Animal Testing (EURL-ECVAM), recalls that this was not the case a few years ago: “I still remember the time when most of the exhibition stands focused on *in vivo* methods. Nowadays, alternative testing technologies take over the majority of the hall, which is inspiring”.

Professor Whelan was a speaker in a workshop called “New approaches to repeated dose toxicity assessment - are we ready to replace animal testing?”, which attracted over 200 attendees. He highlighted the latest tangible developments in the field, especially related to mode of action: exactly how chemicals cause toxic effects in the body. Seurat-1 teams have uncovered adverse outcome pathways (AOPs) for liver toxicity, which are receiving international recognition. “AOP networks are a bridge to a new way of describing and predicting toxicological hazard”, says Professor Whelan, adding that not only SEURAT-1, but also the JRC, the US Environmental Protection Agency and the OECD are actively collaborating in the domain.

Professor Whelan highlighted the fact that researchers from SEURAT-1 are overcoming obstacles in several key research fields. For example, it has made great advances in biokinetics, working to calculate the chemical concentrations needed to be able compare test tube results with those in live animals. One of the SEURAT-1 projects has developed a suite of free, easy-to-use modelling tools accessible via the internet that are a “big step forward” for *in vitro* to *in vivo* extrapolation. SEURAT-1 teams have also brought stem cell technology to the heart of alternative testing, producing valuable guidance on where to source stem cells, how to carry out quality control, and how to characterise them to ensure they are “fit for purpose”.

To demonstrate how the testing frameworks can be applied to safety assessment, SEURAT-1 is developing several case studies, the most advanced one being on *read-across*, which allows data on one substance to be used to predict the toxicity of related chemicals.

SEURAT-1 will present more about the latest developments in the field of alternative testing in repeated dose toxicity testing on 4 December 2015 at the [SEURAT-1 Symposium](#) entitled “Painting the future animal-free safety assessment of chemical substances: Achievements of SEURAT-1”. Registration to the event, which will take place at the Square in Brussels, is now open. The event is open to the public and will include high-level presentations from major stakeholders, a guided tour through alternative toxicity assessment methods, an exhibition showcasing SEURAT-1 results and the presentation of other EU and US initiatives.

As alternative testing methods are progressing in demonstrating proof of concepts, the regulatory

agencies are considering them with increasing interest. In April 2016, the European Chemicals Agency (ECHA) will hold a “topical scientific workshop” on new approach methodologies in regulatory science that “draws inspiration” from Seurat-1.

SEURAT-1 is jointly funded by the European Commission and Cosmetics Europe.

For more information about SEURAT-1: www.seurat-1.eu

To register to the symposium: <http://www.seurat-1.eu/pages/library/events/seurat-1-symposium.php>

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