

**SEURAT-1** is a unique Research Initiative in a form of an innovative Public-Private Partnership launched by the European Commission and Cosmetics Europe. It is jointly funded by EUR 50 million from 2011 to 2015.

The cluster is composed of six research projects and of one coordination action COACH. It is further supported by the Scientific Expert Panel (SEP) composed of renown experts. The SEP aims to :

- define a long term research strategy regarding the replacement of animal testing in the field of repeated dose systemic toxicity,
- identify knowledge gaps & research priorities, and
- propose solutions.



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## Towards the Replacement of *in vivo* Repeated Dose Systemic Toxicity Testing

- **SCR&Tox** Stem cell differentiation for providing human-based organ specific cells
- **HeMiBio** Development of a hepatic microfluidic bioreactor
- **DETECTIVE** Identification and investigation of human biomarkers
- **COSMOS** Delivery of computational tools to predict the effects of chemicals based on *in silico* calculations and estimation techniques
- **NOTOX** Development of systems biological tools for organotypic human cell cultures
- **ToxBank** Supporting integrated data analysis and servicing of alternative testing methods in toxicology
- **COACH** Coordination of projects on new approaches to replace current repeated dose systemic toxicity testing of cosmetics and chemicals



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**SEURAT-1** issues six annual books that describe, step by step, how the international research community is paving the way towards innovative safety evaluation of chemical ingredients used in various products (pharmaceuticals, personal care, food, household chemicals, etc.) and ultimately replacing human safety testing using animals.



# SEURAT: 'Safety Evaluation Ultimately Replacing Animal Testing'

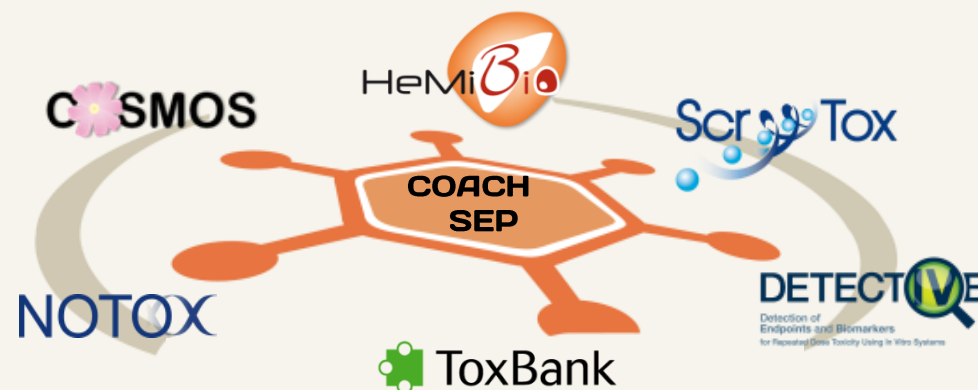
## SEURAT vision

To fundamentally change the way we assess the safety of chemicals, by superseding traditional animal experiments with a predictive toxicology that is based on a comprehensive understanding of how chemicals can cause adverse effects in humans.

## SEURAT strategy

To adopt a toxicological mode-of-action framework to describe how any substance may adversely affect human health, and to use this knowledge to develop complementary theoretical, computational and experimental (*in vitro*) models that predict quantitative points of departure needed for safety assessment.

**SEURAT-1 'Towards the Replacement of *in vivo* Repeated Dose Systemic Toxicity Testing' represents the first step in a specific area addressing the global long-term strategic target SEURAT.**



## SEURAT-1 cluster-level objectives

- To develop highly innovative tools and methodology that can ultimately support regulatory safety assessment
- To formulate and implement a research strategy based on generating and applying knowledge of mode-of-action
- To demonstrate proof-of-concept at multiple levels - theoretical, systems, and application
- To provide the blueprint for expanding the applicability domains - chemical, toxicological and regulatory

## SEURAT-1 achievements

- Development of a long term research strategy based on the research projects working on the development of new *in vitro* test systems for the innovative assessment of human safety
- Development of prototype bioreactors for toxicity testing
- Generation and characterization of cellular models for toxicity testing
- Development of computational tools for toxicity prediction, allowing e.g. for read-across predictions relevant to chronic toxicity
- Successful collaboration with other major research initiatives in the field of toxicology, incl. Tox21, ESTIV, EPAA, CAAT

**CALL  
FP7-Health-2010  
Alternative  
Testing**

**SEURAT** research will have an impact on many areas where human safety assessment is key, such as pharmaceuticals, food, and safety assessment of industrial chemicals, plant protection products and biocides