B·DEBATE International Center for Scientific Debate BARCELONA

IBEC Institute for Bioengineering of Catalonia

ELISABET BERGGREN CV

PARTICIPANT AT:

FUTURE TOOLS FOR BIOMEDICAL RESEARCH. IN VITRO, IN SILICO AND IN VIVO DISEASE MODELING

October, 1st-2nd, 2015, Barcelona

Elisabet Berggren, Deputy Head of Unit of Systems Toxicology and EURL ECVAM, Institute for Health and Consumer Protection, Joint Research Centre, European Commission, Ispra, Italy

Elisabet Berggren is Deputy Head of Unit at the Systems Toxicology Unit (STU) and the European Reference Laboratory for Alternatives to Animal Testing (EURL ECVAM). The STU assists in the development of a new and more efficient safety assessment of chemicals based on in vitro, in silico and in chemico methods. The aim is to develop new predictive methodologies more relevant to human health, encouraging innovation and avoiding animal testing. Berggren is also contributing to the coordination of SEURAT-1, the largest EU initiative ever on alternative testing, focussing on toxicity testing for repeated dose toxicity and funded by European Commission (FP7) and Cosmetics Europe. Berggren started to work for the European Commission in 1996, and she was responsible for the Technical Committee of Classification and Labelling of Dangerous Chemicals at the European Chemicals Bureau during many years. She made her PhD in physical chemistry at Stockholm's University in 1991. In her academic career she primarily focussed on the development of theoretical dynamic models for liquid crystals and biological relevant systems.

B·DEBATE IS AN INITIATIVE OF:

biocat "la Caixa" Foundation

B·DEBATE International Center for Scientific Debate BARCELONA

IBEC Institute for Bioengineering of Catalonia

ELISABET BERGGREN

ABSTRACT

PARTICIPANT AT:

FUTURE TOOLS FOR BIOMEDICAL RESEARCH. IN VITRO, IN SILICO AND IN VIVO DISEASE MODELING

October, 1st-2nd, 2015, Barcelona

Elisabet Berggren, Deputy Head of Unit of Systems Toxicology and EURL ECVAM, Institute for Health and Consumer Protection, Joint Research Centre, European Commission, Ispra, Italy

Animal Research and Possible Alternatives in Biomedicine: Overview

There is currently several international initiatives, such as USEPA Tox21 (http://www.epa.gov/ncct/Tox21/) and SEURAT-1 (http://www.seurat-1.eu/) supporting a new vision to fundamentally change the way we assess the safety of chemicals and pharmaceuticals, 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. The strategy is 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. We develop a theoretical Adverse Outcome Pathway (AOP) describing the key events of the biological process initiated by a chemical stressor, and we then develop a testing strategy for toxicity prediction, based on AOP knowledge relevant to the toxicity to be predicted. Typically a combination of in vitro, in silico and in chemico data is needed to trigger selected key events. Finally the results of testing strategies in combination with already existing data (physical chemical information, animal or human in vivo data or other) and biokinetic modelling, should provide sufficient evidence to support safety assessment more time- and cost- efficiently compared to traditional methods.

B·DEBATE IS AN INITIATIVE OF:

biocat "la Caixa" Foundation

B·DEBATE International Center for Scientific Debate BARCELONA

IBEC Institute for Bioengineering of Catalonia

ELISABET BERGGREN

ABSTRACT

PARTICIPANT AT:

FUTURE TOOLS FOR BIOMEDICAL RESEARCH. IN VITRO, IN SILICO AND IN VIVO DISEASE MODELING

October, 1st-2nd, 2015, Barcelona

Elisabet Berggren, Deputy Head of Unit of Systems Toxicology and EURL ECVAM, Institute for Health and Consumer Protection, Joint Research Centre, European Commission, Ispra, Italy

ECVAM and SEURAT-1 Experiences Looking Towards a More Efficient Safety Assessment

EURL ECVAM (https://eurl-ecvam.jrc.ec.europa.eu/) is through their development, evaluation and validation of non-animal methods striving to contribute to a more relevant and efficient safety assessment of chemicals, including e.g. pharmaceutical or cosmetic ingredients. SEURAT-1 (http://www.seurat-1.eu/) was the largest EU research initiative ever on alternative methods, but also here the focus was supporting a new vision to fundamentally change the way we assess the safety of chemicals and pharmaceuticals and improve predictions compared to traditional animal models. The idea here is to provide examples on currently available tools and methods, how to combine them in safety assessment strategies and which will be the next problems that need to be tackled.

B·DEBATE IS AN INITIATIVE OF:

biocat "la Caixa" Foundation