

safescimet course 3.3 - Cellular Signalling and Predictive Toxicology

(09–13 April 2018, Leiden, The Netherlands)

A unique opportunity to broaden your knowledge of drug discovery and development with special emphasis on drug safety.

safescimet offers an outstanding faculty of academic and industry experts and an interactive programme, including case studies from the pharmaceutical industry providing a broad understanding of the latest developments in safety sciences.

Cellular Signalling and Predictive Toxicology

This course will provide participants with a comprehensive overview how cells deal with chemical stress at the molecular and cellular level and make them familiar with the fundamentals necessary to understand cellular mechanisms of adverse drug reactions. Special emphasis is put on the recognition that during drug development the involvement of specialist scientist is often required to achieve a multidisciplinary solution. Participant will receive knowledge about the major processes in cytotoxicity, become aware of technologies (use of stem cells, bioimaging, in silico modelling) to evaluate cellular stress responses and cytotoxic reactions and will be able to extrapolate the knowledge from the cellular level to the organ and human level.

Key Subjects

- Consequences of cell injury and biochemical mechanisms
- Adverse Outcome Pathway (AOPs) paradigm
- Cellular defence mechanisms against cell stress
- Molecular mechanisms of cellular senescence, autophagy or cell death
- Intra- and intercellular signalling and mechanisms of cell injury
- Translation of cell injury to in vivo models and the clinic
- Molecular mechanisms of idiosyncratic drug toxicities and ADR
- Stem cell technology and applications in understanding mechanisms of toxicity
- Functional genomic technologies
- Quantitative high content imaging of drug-induced cellular perturbation for adverse outcome prediction

Learning Outcomes

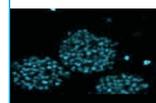
- Have an appreciation of basic cell biological responses to injury
- Know and understand the themes and major processes in cytotoxicity
- To relate the basics of molecular toxicity to the cellular stress response
- Learn about new technologies available for cytotoxicity evaluation
- Extrapolate the knowledge from cell level to organ and system (human) levels
- Integrate the role of in vitro cytotoxicity evaluation in the context of risk assessment

[Link to apply to this course](#)

Deadline for registration 21 March 2018

Studying drug-induced cell responses in HepG2 3D spheroid cells

Oxidative stress
Srnx1-GFP



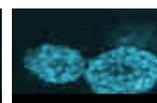
Vehicle control

ER stress
BiP-GFP

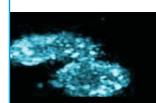


Vehicle control

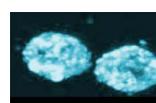
DNA damage
p53-GFP



Vehicle control



Diclofenac



Tunicamycin



Etoposide

Course Organisers



Prof Bob van de Water
Division of Toxicology, Leiden
Academic Centre for Drug Research,
Leiden University, Leiden, The Netherlands



Dr Eckhard von Keutz
Bayer HealthCare, Wuppertal, Germany

Participant Feedback

I liked the small cases from industry a lot.

It was really nice to see people from industry and academia interacting with each other.

