



Contribution ID: 290

Type: **Invited Speaker**

Alternatives to animal testing in Nanotoxicology

Monday 28 November 2016 10:25 (20 minutes)

Thailand is currently in the stage of moving forward in the area of humane science by reduce, refine and replacement of animals, knowing as the 3Rs principle, in research and development of consumer products. With this regard, the Thai Food and Drug Administration (FDA), Ministry of Public Health, has adopted ASEAN cosmetic directive for non-animal testing of cosmetics. Meanwhile, the use of conventional animals for toxicity testing is becoming obsolete as alternative methods are increasingly developed and validated for chemicals, which are also useful for the field of nanotoxicology. This talk will give an overview of nanosafety research at NANOTEC using in vitro models of cells, tissues, as well as microorganisms for investigating effects of nanomaterials to human health and the environment. In addition, zebrafish embryo is now increasing of interest as an alternative, since they are not considered as animal experimentation according to the EU Directive 2010/63/EU on the protection of animals used for scientific purposes. This model allows for study on embryonic development and various biomolecular endpoints.

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Session Classification: Hornbill 1

Track Classification: Nano-safety