

Additional abundance functions to support AOP's

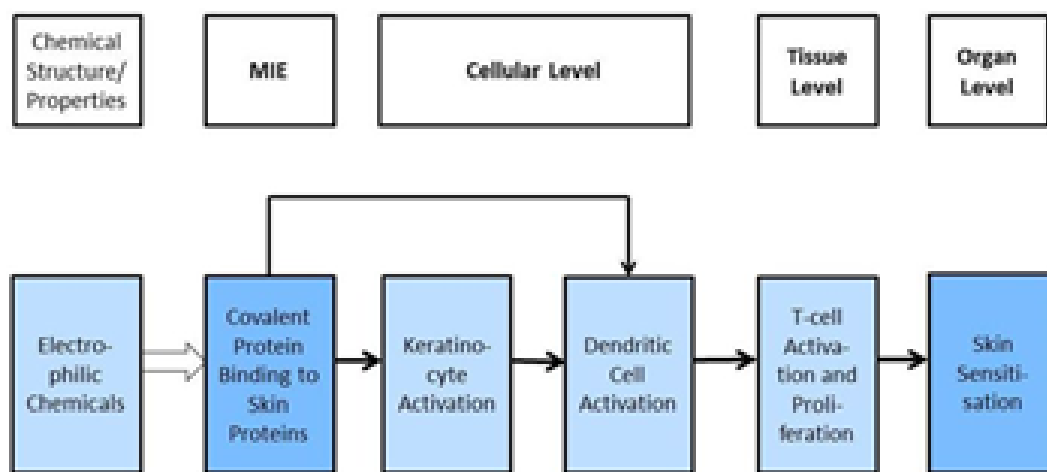
Summary

Need cellAbundance and speciesAbundance to capture changes in cells and species for Adverse Outcome Pathways (AOPs) in Toxicology.

Description

Molecular initiating events and key events of an AOP are often linked to effects on the tissue, organ, and whole organism populations. We will require functions and appropriate namespaces to capture these concepts. The AOP "Covalent Protein binding leading to Skin Sensitization" (see AOPwiki) contains a step indicating an increase in T-cell proliferation. While BEL does capture this concept as a biological process it may be important to also specifically capture a result of this process, which could be an increase in the abundance of T-cells. While not specifically captured in this AOP, AOPs have the potential to need to indicate an overgrowth of a cell type as a component of an adverse outcome. We propose to prepare for this need by specifying a cell type abundance function:

cellAbundance (*namespace*: T-cells)



In the AOP for "Aromatase inhibition leading to reproductive dysfunction(in fish)" (see AOPwiki), the molecular event leads to a reduction in the population of the fish at the population level. In this case we could capture the reduction of fish based on the species name of the fish within a new function for species abundance:

speciesAbundance(TAX: Danio rerio) or speciesAbundance(TAX: Pimephales promelas)

---(NCBI Taxonomy namespace potentially, species names or Taxonomy ID#)---

