

# Dermal and Ocular Toxicity

# Overview

- Skin is a barrier that protects the body from the environment
- A chemical's properties determine absorption across the skin barrier
- Skin has appreciable metabolic ability (phase I and II enzymes)
- Chemicals may have a non-immune (direct) or immune-based mechanisms for creating dermatitis (inflammation).

# Skin is an important barrier

- Large surface area (m<sup>2</sup>)
- Sensory organ (thermal, chemical, tactile inputs to brain)
- Thermal and photo barrier (sweat, melanin pigment)
- Maintains salt and water balance (permeability barrier)
- Hormonal balance (vitamin D synthesis)
- Metabolism (xenobiotic breakdown)
- Elimination of xenobiotics (esp. metals)
- Immune modulation (barrier from infectious agents, Langerhans/dendritic cells sample antigens, present antigens to lymph node cells)