

Abstract: Routes of Exposure–Inhalation

This presentation will begin with an overview of the anatomy, physiology, and function of the respiratory tract, including key species differences which should be considered when interpreting the results of animal inhalation toxicology studies for human risk assessment. Inhalation toxicology studies are technically very challenging; unlike other routes of exposure where the exact dose administered is known, for inhaled studies the given dose needs to be calculated based on a series of measurements, calculations and assumptions. The design and conduct of these studies will be described including inhalation exposure systems for different species, inhalation devices and methods of aerosol generation for different physical forms of test substance (nebulizers, metered-dose inhalers and other dry powder generators), understanding and measuring inhaled dose and common toxicity findings (including irritation, inflammation and hyper/metaplasia). Finally, the use of inhaled toxicity study data for risk assessment will be discussed.