

2008 SBRP Special Seminar & Networking Opportunity
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Pharmacokinetics of the Interaction between Inhaled and Dermal Absorption of Naphthalene, an Environmental Polycyclic Aromatic Hydrocarbon

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Wednesday

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10 - 11:30 am

Chamblee 106 Rooms 1A/1B

Dr. Nylander-French's research is focused on understanding the inter-relationship between dermal and inhalation exposure and the effect of individual genetic differences on the function of enzymes that detoxify hazardous agents that affect the development of disease. This research requires a new scientific approach to quantitatively measure exposure to toxicants, quantitative genetic differences between exposed subjects, and sophisticated exposure-modeling tools in an effort to standardize and improve exposure and risk assessment and characterization. Her research group has pioneered approaches to quantitatively measure both skin and inhalation exposures to toxicants, including naphthalene as a model polycyclic aromatic hydrocarbon. Additionally, her group has developed sophisticated exposure modeling tools using mathematical and statistical principles in an effort to standardize and improve exposure and risk assessment. In this presentation, Dr. Nylander-French will focus on the tools they have developed to investigate the interaction between inhaled and dermal absorption of naphthalene in order to discriminate between the systemic dose that results from dermal exposure and other routes of exposure. Although, significant potential for both site of contact and systemic toxicity exist through dermal exposure to naphthalene, the role for dermal penetration and uptake, metabolism to reactive intermediates, and mechanisms of action of observed toxicity in the skin has been insufficiently investigated. Quantitation of the individual dermal and inhalation dose and determination of a mechanism of action hinges upon identification of appropriate biomarkers of exposure that can discriminate between acute and chronic exposure, and also on development of quantitative analytical procedures.