NC STATE UNIVERSITY

Comparative Medicine Institute

David Dorman

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Toxicology and Olfaction

Research emphasis:

Dr Dorman's research interests include neurotoxicology, nasal toxicology, pharmacokinetics, and cognition and olfaction in animals. Areas of special emphasis have included evaluation of the pharmacokinetics and toxicity of manganese and hydrogen sulfide and studies evaluating direct olfactory transport of inhaled chemicals in laboratory animal models. His laboratory has also been involved in studies dealing with health concerns seen in combat troops during deployment. These have examined the disposition of tungsten, a replacement for lead-based projectiles, respiratory effects following inhalation of Middle Eastern sand particles, and most recently refinement of selection and training methods for dogs used to detect improvised explosive devices.

Application:

- Toxicology
- Pharmacokinetic
- Behavior and cognition

Collaboration potential:

- Assessment of olfaction in animals
- Nose-to-brain delivery of drugs and chemicals
- Behavior and cognition
- Safety pharmacology

Selected publications:

1. Foster ML, Bartnikas TB, Johnson LC, Herrera C, Pettiglio MA, Keene AM, Taylor MD, and Dorman DC (2015). Pharmacokinetic evaluation of the equivalency of oral routes of manganese exposure in F344 rats. *Toxicol Sci* 145: 244-251.
2. Lazarowski L, Foster ML, Gruen ME, Sherman BL, Milgram NW, and Dorman DC (2015). Olfactory discrimination and generalization of ammonium nitrate and structurally related odorants in Labrador retrievers. *Anim Cogn* 18: 1255-1266.
3. Lazarowski L, Foster ML, Gruen ME, Sherman BL, Case BC, Fish RE, Milgram NW, and Dorman DC (2014). Acquisition of a visual discrimination and reversal learning task by Labrador retrievers. Anim Cogn 17(3):787-792.
4. Lazarowski L and Dorman DC (2014). Explosives detection by military working dogs: Olfactory generalization from components to mixtures. Appl Anim Behav Sci 151: 84-93.