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P9

A Pantropic Study of Rabies Virus in Arctic Fox

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Rabies is endemic in arctic fox, *Alopex lagopus*, in Alaska. The occurrence of rabies is cyclic in northern Alaska with outbreaks occurring every 3-4 years. These occur in the winter when foxes move about in search of food and have opportunities for close contact around major food sources, such as animal carcasses and landfills. Unlike warm climates in which the virus is degraded by heat, cold temperatures presumably preserve the virus in infected animal carcasses. Scavenging of fox and other carcasses is very common in the winter as evidenced by the remains of radio-collared animals that died and were retrieved. We hypothesize that scavenging foxes can acquire the disease by feeding on infected carcasses (i.e. soft tissues), which would result in the propagation of the virus and spread of the disease in a fox population. Until now, studies have been lacking to support this hypothesis. Fourteen arctic foxes that tested positive for rabies virus in brain tissue using direct fluorescent antibody analysis are the source of the 13 different tissues being analyzed. Both a direct rapid immunohistochemistry test and a fluorescent antibody test are being used to screen for rabies virus in these various tissues. The results will provide valuable insight into the epizootiology of rabies in arctic and subarctic regions.

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Influence of Mercury Toxicity on Hemoparasite Prevalence in *Tachycineta bicolor*

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The link between ecotoxicology and infectious disease has not been widely explored in the literature and this study aims to partially fill that void. Before 1950, the South River in Virginia was contaminated with mercury. Recent work at the South River has shown that tree swallow (*Tachycineta bicolor*) females along the contaminated river had impaired reproductive success compared to those on uncontaminated reference tributaries (Brasso and Cristol 2008). Knowing that mercury contamination impacts their fitness leads to questions regarding its influence on health and disease susceptibility. The specific aims of this pilot study were to assess (a) cell-mediated immunity and (b) hemoparasite prevalence in tree swallows along the contaminated South River in comparison to those on nearby uncontaminated rivers in the same watershed. We hypothesized that tree swallows along the mercury contaminated sites would have a suppressed immune response and an increased prevalence of hemoparasites. Cell-mediated immunity was examined by the phytohaemagglutinin skin test. Hemoparasite prevalence was determined by blood smear examination followed by confirmation with polymerase chain reaction. Results of this study will be presented. Brasso, RL and DA Cristol. 2008. Effects of mercury exposure on the reproductive success of tree swallows (*Tachycineta bicolor*). *Ecotoxicology* 17:133-141.