

**Parvoviruses of Mink and Fox – Molecular Epidemiology and Prevention**

**Tarja Sironen**<sup>1,2</sup>, Anna-Maria Moisander-Jylhä<sup>2</sup>, Jenni Virtanen<sup>1</sup>, Kirsi Aaltonen<sup>2</sup>, and Olli Vapalahti<sup>1,2</sup>

<sup>1</sup>University of Helsinki, Medicum, Department of Virology, Helsinki, Finland;

<sup>2</sup>University of Helsinki, Department of Veterinary Biosciences, Helsinki, Finland

Many mustelid and other carnivore species harbor closely related parvoviruses, some of which cause severe disease in the host species. Parvovirus infections of production animals are the most significant cause of enteritis leading both to animal welfare problems and economic losses. To prevent these infections, vaccines have been developed and are in use, however, the vaccines are not always up to date and the vaccination schedules and dosage may be unoptimized. Mink (*Neovison vison*), foxes (*Vulpes lagopus*) and finnraccoons (*Nyctereutes procyonoides*) can all be vaccinated using a mink enteritis virus –vaccine, however, the level of protection is not the same for the different animal species. The recent discovery of new parvoviruses calls for re-assessment of the current vaccination schemes. We studied the molecular epidemiology of parvoviruses infecting Finnish fur animals. Samples obtained from mink and foxes revealed the presence of similar, yet not identical parvovirus variants. Based on these observations, a novel vaccine candidate was developed specifically for fox parvovirus. Antibody responses elicited by the candidate vaccine, and the currently used MEV-vaccine were compared, and the results support the continued development and testing of the candidate fox parvovirus vaccine. The technique for vaccine production used in this study will also enable vaccine producers to easily update the vaccine, if new strains or variants are detected in the animal population. We have further studied the presence and titers of maternal antibodies relative to age of the pups and hope to have new recommendations on the vaccination scheme to maximize the effectiveness of the vaccine.