

## PCR detection of *Neospora caninum*, *Toxoplasma gondii* and *Encephalitozoon cuniculi* in brains of wildlife carnivores in the Czech Republic

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### Abstract

*Neospora caninum* (Apicomplexa: Sarcocystidae), *Toxoplasma gondii* (Apicomplexa: Sarcocystidae) and *Encephalitozoon cuniculi* (Microsporidia: Unikaryonidae) are pathogens infecting in brain tissue of many mammals and can cause diseases of wildlife as well domestic animals. The caused infections can be subclinical in immunocompetent hosts, but serious signs can be observed in young, immunocompromised or pregnant animals or man in case of *T. gondii* and *E. cuniculi* infections. Wild animals could be source of the infection and contribute to the circulation of pathogens. Lots of epidemiological studies of these three pathogens in wild carnivores have been based on serological diagnostic methods, but recently, methods of molecular diagnostics have become used, especially for their high specificity. For our study, diagnostic PCR served for the determination of prevalence of *N. caninum*, *T. gondii* and *E. cuniculi* in 240 wildlife carnivores from the

Czech Republic. We examined brain tissue of 152 red foxes (*Vulpes vulpes*), 61 pine and stone martens (*Martes martes*, *M. foina*), 19 Eurasian badgers (*Meles meles*), 3 raccoon dogs (*Nyctereutes procyonoides*), 2 European polecats (*Mustela putorius*), 2 domestic ferrets (*Mustela putorius furo*) and 1 European otter (*Lutra lutra*). The animals came from different regions of the country and no information about their sex or age was known. DNA of *N. caninum* was found in 7 red foxes (4.61%), DNA of *T. gondii* in 3 stone martens (4.92%) and in 2 red foxes (1.32%) and DNA of *E. cuniculi* in 2 stone martens (3.28%) and in 1 examined otter. There were no findings of more than one expected pathogen in any of positive brain tissue. The exact procedure of the investigation, and comparison with the occurrence of these three pathogens in wild carnivores in the other European countries will be presented. This study was financed by MSM 6215712403, GAČR 524/03/H133 and FRVŠ 1494/2004.