

## IMMUNOLOGICAL INVESTIGATION OF RABIES VIRUS AND ORAL VACCINATION EFFECTIVENESS IN RACCOON DOG POPULATION IN LITHUANIA

Ingrida Jacevičienė<sup>1,2</sup>, Eugenijus Jacevičius<sup>3,2</sup>, Vytas Antanas Tamošiūnas<sup>1</sup>, Gediminas Pridotkas<sup>3,2</sup>, Jonas Milius<sup>2,4</sup>, Kazimieras Lukauskas<sup>3,5</sup>

<sup>1</sup>Laboratory of Molecular Immunology, Institute of Immunology of Vilnius University, Molėtų str. 29 LT-08409 Vilnius

<sup>2</sup>National Food and Veterinary Risk Assessment Institute, Kairiūkščio str. 10, LT-08409 Vilnius tel. +370 5 278 0474; e-mail: ijaceviciene@vet.lt

<sup>3</sup>Department of Infectious Diseases, Lithuanian Veterinary Academy, Tilžės str. 18, LT-47181 Kaunas

<sup>4</sup>Department of Food Safety and Animal Hygiene, Lithuanian Veterinary Academy, Tilžės str. 18, LT-47181 Kaunas

<sup>5</sup>LR, The State Food and Veterinary Service, Siesikų str. 19, LT-07170 Vilnius

**Summary.** Rabies is a zoonotic disease with an epidemiological complex. Analysis of rabies in raccoon dogs (*Nyctereutes procyonoides*) in 2003-2008 allowed to assess the epidemiological situation in Lithuania. By the method of direct immunofluorescence (FAT) rabies antigens were detected in 66.63% from 3291 raccoon dog brain samples tested. The highest number of infected animals was found in 2006 (89.40%). However, the number of disease cases decreased significantly in 2007 (37.77%) and in 2008 (6.81%). It might be explained by the fact that the wildlife oral rabies vaccination (ROV) using „Lysvulpen“ live vaccine produced by Bioveta (Czech Republic) was carried out in the territory of Lithuania in 2006-2008.

Efficacy of rabies oral vaccination in raccoon dogs was tested by indirect enzyme-linked immunosorbent assay (ELISA) Platelia Rabies II produced by Bio-Rad (France). In the period of 2006-2008, 510 blood samples from raccoon dogs were examined by ELISA and 237 (46.47%) of them were found to be positive. Eighty three blood samples from one year old or younger animals were investigated and 24 of them were found to have antibodies (28.91%). In 427 blood samples from older raccoon dogs the antibodies were found in 213 cases (49.88%). Our study showed that the programme of oral immunization is an effective way to prevent and control the spread of the disease in raccoon dog population. After ROV we studied the immunity against rabies determining the specific antibodies by ELISA technique only 46.47% of samples of hunted raccoon dogs with the antibody titers of 0.5IU/ml or higher.

**Keywords:** immunological investigation, oral vaccination, rabies, raccoon dog.