

## Abstract

Proteins from the lipocalin family play significant roles during the transport of chemical signals. These globular proteins (molecular mass: 17,7 - 21,7 kDa) are able to bind a wide spectrum of volatile ligands. Since they decay continuously, the scent impact is prolonged. Major urinary proteins (MUPs) are lipocalins, typically found in the urine and used during olfactory communication in the house mouse. But the urine is not the only source of chemical signals. Many species of mammals perform selfgrooming – a technique in which saliva is transported into the fur. The goal of the thesis is to identify main proteins that are involved in chemical communication by selected species of the genus *Apodemus*, and to discover the source of production (i.e. saliva or urine). The Experion capillary electrophoresis system was used to confirm the absence of lipocalins in the urine in two *Apodemus* species (*A. uralensis*, *A. sylvaticus*). Furthermore, a lot of lipocalins is present in the saliva of above-mentioned species. The quantity and types of salivary lipocalins was identified by 2D electrophoresis along with mass spectrometry analyses (MALDI MS/MS) in three species of the genus *Apodemus* (*A. uralensis*, *A. sylvaticus* and *A. flavicollis*). The conclusion of this inter-specific comparison suggests, that sociality (i.e. male-male competition for females) has driven the evolution of chemical communication.

**Key words:** chemical communication, lipocalins, *Apodemus*, MUP, OBP