

ANNA KUKEKOVA, PhD

WHAT DOES THE FOX SAY ABOUT ANIMAL DOMESTICATION

Monday, 02.07.2018, 13:15 at Lecture Hall B, VetMedUni



ANNA KUKEKOVA, PhD

WHAT DOES THE FOX SAY ABOUT ANIMAL DOMESTICATION

The differences in behavior of dogs and wolves strongly suggest an underlying genetic component. The genome sequencing identified several regions which differentiate the two species but it remains extremely difficult to pinpoint genes which are causally associated with domesticated behavior. Unlike modern dogs, which have been selected for any number of different traits including morphology and appearance since domestication began, the tame and aggressive fox strains (*Vulpes vulpes*) have been developed by 50 generations of selection solely for behavior. We sequenced and assembled the red fox genome and re-sequenced a subset of foxes from the tame, aggressive, and conventional farm-bred populations to identify genomic regions associated with the response to selection for behavior. The analysis of the identified regions highlighted a strong positional candidate gene for tame behavior: *SorCS1*, which encodes the main trafficking protein for AMPA glutamate receptors and neurexins and suggests a role for synaptic plasticity in fox domestication. Other regions identified as likely to have been under selection in foxes include genes implicated in human neurological disorders, in mouse behavior, and in dog domestication. The fox represents a powerful model that can benefit genetic studies of behavior in dogs and other domesticated species.

Anna Kukekova is an assistant professor in the Department of Animal Sciences at the University of Illinois at Urbana-Champaign. Dr. Kukekova graduated from St. Petersburg State University in Russia and obtained her PhD at the Institute of Cytology of the Russian Academy of Sciences. She then proceeded to a post-doctoral program at the Baker Institute for Animal Health at Cornell University where she was a research associate and subsequently a principal research scientist in the laboratory of Dr. Greg Acland. In 2002, she established a collaboration with Dr. Trut's group at the Institute of Cytology and Genetics of the Russian Academy of Sciences to study the genetics of complex behaviors in the fox model of animal domestication. Since 2012, Dr. Kukekova is an Assistant Professor at the Department of Animal Sciences at the University of Illinois at Urbana-Champaign.