

**МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РФ
ТОМСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
БИОЛОГИЧЕСКИЙ ИНСТИТУТ**

СТАРТ В НАУКУ

**МАТЕРИАЛЫ
LXIX научной студенческой конференции
Биологического института**

Томск, 20–24 апреля 2020 г.

**Томск
2020**

MODELING AUTISTIC FEATURES IN ANIMALS

A.S. Trofimova
lavdanskaysky@gmail.com

Autism, or autism spectrum disorder (ASD), refers to a complex set of symptoms characterized by challenges with social skills, repetitive and ritualized behaviors and nonverbal communication. Autism affects 1 in 59 children in the United States today. Moreover, increase in autism prevalence rates 17 % annually, which makes the problem of diagnosis and treatment of autism spectrum relevant.

My review is devoted to animal models of ASD. A variety of some features is simulated in rodents and other laboratory animals (primates, invertebrates). Both environmental and genetic factors are considered to play a role in forming the autism disorder. Animal models are essential for the research into genetic susceptibility and interactions between environmental and genetic factors. Animal model of autism disorder can display the core symptoms. So, it will be possible to find causes and treatments.

Some of the environmental risk factors were successfully represented in rodents. A large epidemiological study has recently confirmed maternal infection as a risk factor. An examination of more than 10,000 autism cases found a significant association with maternal viral infection in the first trimester. Actually, the maternal valproic acid exposure leads to the decrease in the expression of neuroligin, an autism candidate gene. That is the reason why some genetic modifications can increase the risk for developing autism disorder.

There are number of difficulties in developing autistic features in animals. First, the autism is a heterogeneous disorder that may include different causes. Moreover, the disorder is currently defined by a complex set of symptoms rather by the objective biomarkers. Third, two of four core behavioral symptoms can only be approximated in animal studies. Nevertheless, the animal study is one of most essential fields in revealing the nature of autism spectrum disorder.

Academic advisor – senior lecturer E. V. Vychuzhanina