



Universität  
Basel

## Research Project

### Synaptic Characterization of Mouse Models

#### Third-party funded project

**Project title** Synaptic Characterization of Mouse Models

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**Organisation / Research unit**

Departement Biozentrum / Cell Biology (Scheiffele)

**Department**

**Project start** 01.03.2012

**Probable end** 28.02.2014

**Status** Completed

Autism spectrum disorders (ASDs) are neurodevelopmental disorders, diagnosed early in development during the time of circuit development. The symptoms of ASDs are abnormal social interactions, language impairments and repetitive behavior. Genetic factors play an essential role in autism. In fact, several genes implicated in autism such as neurexins, neuroligins, SAPAP and shanks are synaptically expressed (Bourgeron et.al., 2009) For most of these genes, mouse models have been generated, which also display autistic-like behaviors. In addition, recent studies on these animal models reveal an essential role of the excitation/inhibition (E/I) balance in ASDs. An imbalance can manifest from alterations in the synaptic function of either excitatory or inhibitory synapses, leading to an overall imbalance in the neuronal network. The aim of this project is to physiologically characterize mouse models of autism to gain further insight on the synaptic circuits altered by the E/I imbalances in the developing brains of these animals and finally to develop strategies to restore this E/I balance.

**Financed by**

Private Sector / Industry

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