

FUNDING PROGRAM FOR NEXT GENERATION WORLD-LEADING RESEARCHERS

Project Title: Physiological roles of novel molecules, related to the psychological and neuronal diseases, and trials for the clinical use	
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1. Background of research

Many people are receiving psychiatric damages, since recent economical or social problems in Japan. Furthermore, the Tohoku Earthquake followed by radioactive contamination has induced mental diseases such as posttraumatic disorder (PTSD) or depression. Addition to these mental diseases, many patients with schizophrenia, autism and dementia are worrying all over the world. Researchers in medical and pharmaceutical field are in fierce competition to make more safety and efficient new drugs, however they have not got them yet.

The patients with these mental diseases do not take any actions until too late, since they are barely visible on the physical appearance.

2. Research objectives

We are seeking the solutions based on genetic and life style of the patients. We have two ways of strategies and procedures; “Which genes do bring up each mental disease?” “How life style applies to development of each mental disease?” We must develop new drugs and then approach to therapy based on research achievements, which lead to happiness and benefit of people. Our fruits would cover new diagnosis techniques at non-psychiatrists, which can detect the mental diseases at the early stage.

3. Research characteristics (incl. originality and creativity)

We are studying about the mechanism of several types of mental diseases. Many experimental methods are used for the projects, including behavioral pharmacology, electrophysiology, imaging and morphology. We also attempt to clinical trials, to clarify causes of mental diseases. We are performing the projects using the combination of various knowledge and technique in many fields of neuroscience.

4. Anticipated effects and future applications of research

The earlier patients are diagnosed as psychiatric diseases, the easier they are turned to their normal conditions. Our outcome could support cure and prevention for mental and psychiatric diseases.

Problems

CLEAR

Many patients with schizophrenia, autism and dementia are worrying all over the world. Researchers in medical and pharmaceutical field are in fierce competition to make more safety and efficient new drugs, however they have not got them yet. The Tohoku Earthquake followed by radioactive contamination has induced mental diseases such as posttraumatic disorder (PTSD) or depression.

Our idea

Three novel molecules have already found by our group

autism, depression, ADD, schizophrenia, Alzheimer's disease

social defecation, immobility, hyper locomotion, pre-pulse inhibition, memory deficit,

similar

Methamphetamine-treated mice

Procedure of study

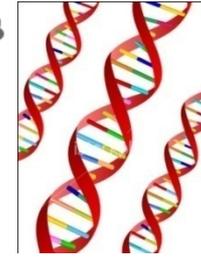
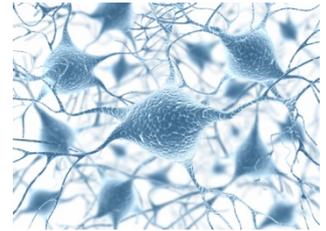
Check the results of basic studies

Clinical study

In vivo microdialysis



Cell culture



gene

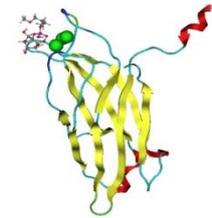


mouse

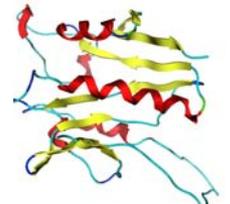
Three important molecules

strategy

Isolate increased proteins by methamphetamine



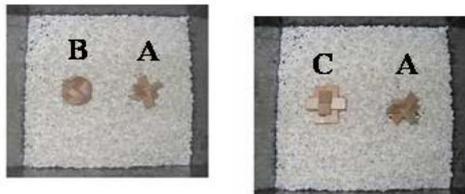
shati



piccolo

TMEM163

Learning & Memory



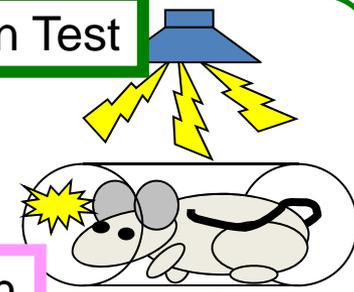
Contextual Learning



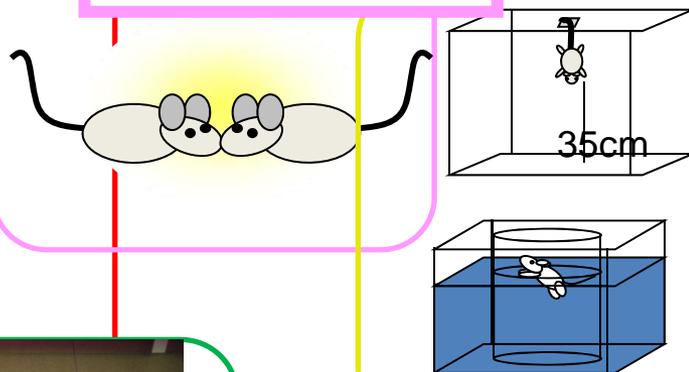
Latent Learning



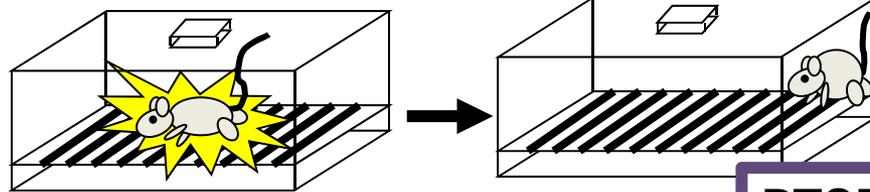
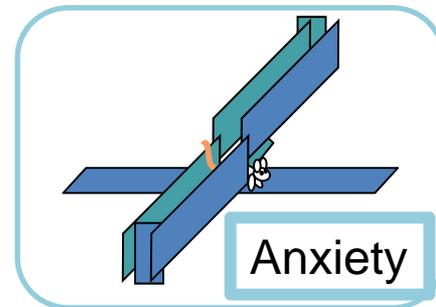
Pre-Pulse Inhibition Test



Social Interaction



Depression



PTSD