MODEL OF DEPRESSION AND ANXIETY
FOR BIOMEDICAL STUDIES

Description
Experimental model of depression should satisfy four criteria of similarity with the disease in human: etiological, symptomatic, improved condition of animals treated with antidepressants, and coincident neurochemical changes in the brain of animals and depressive patients. The proposed model meets these criteria to the maximum.

Etiological factors: Chronic emotional social stress caused by daily aggressive confrontations, constant habitation in a common space with a strong aggressive rival produce the state of anxiety and fear due to permanent expectation of attack.

Symptoms: General behavioral deficit manifesting itself both in individual and social behavior, complete indifference similar to dynamic inhibition, lower dynamic activities in depressive patients, anxiety, phobia, and helplessness. Somatic changes: decrease in body weight and water consumption, damages in gastric mucous, immune deficiency, higher corticosteroid level, sensitivity to antidepressants and anxyolitics.

Neurochemical changes: The following hypothesis on the dynamic changes of metabolic processes and reception was proposed and proved on the basis of studying the state of serotonergic system of the brain in individuals in the course of development of experimental depression: the initial stage of depression progress is accompanied by activation of serotonergic activity, while the stage of deep depression is characterized by its distortion.

Technical appraisal and economic benefits
The new experimental model of depression and anxiety in mice is more adequate to the clinical presentation of human depressive pathology in symptomatic similarity, etiology,
sensitivity to antidepressants and anxyolitics, and in neurochemical changes emerging in the brain. The model excels the world analogs in its readiness. Using the model, one can run neurobiological research of various psychoemotional insanities accompanied by developing neuropsychological immunodeficiency, aberration of cognitive functions, sexual and other psychosomatic disorders.

**Application areas**
The model can be used in theoretical and experimental psychiatry, in particular, for screening new anxyolitics (for treating anxiety) and antidepressants in modern pharmacology and for studying:
- dynamic changes in the activity of brain mediator systems during progressing and deepening depression,
- specific neurochemical features of inherited predisposition towards the progress of depressive processes and anxiety in human,
- the mechanisms of aberrations in cognitive processes affected by pathological factors of social origin,
- development and correction of immune deficiency,
- the interrelations between depression and alcoholism,
- ways of correcting various somatic deviations caused by chronic social stress.

**Development stage**
The model is tested in five institutes of the Siberian Branch of the Russian Academy of Sciences (Institute of Chemical Biology and Fundamental Medicine, Institute of Cytology and Genetics) and Russian Academy of Medical Sciences (Institute of Clinical and Experimental Lymphology, Institute of Physiology, Institute of Molecular Biology and Biophysics) within the framework of scientific collaboration. Using the model, joint studies are run in collaboration with the Institute of Neurosciences, Utrecht, Netherlands.

**Patent situation**
A know-how is available

**Commercial offers**
Contracts on supply of animals.

**Estimated cost**
To be negotiated.

**Contacts**
Cand.Sc. Galina N. Kiseleva, Assistant Director for International Ties
Institute of Cytology and Genetics, Siberian Branch of the Russian Academy of Sciences
10, Prosp. Akademika Lavrentieva, Novosibirsk, 630090, Russia
Phone: (383) 333-36-99
Fax: (383) 333-12-78
E-mail: kiseleva@bionet.nsc.ru
http://www.bionet.nsc.ru/