Schizophrenia: validity of a 3-hit mouse model
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Schizophrenia: validity of a 3-hit mouse model

Prevalence: 1%
Age onset: 15-25 years
Symptoms: positive, negative, cognitive
Debilitating
Heavy costs

Genetic X Environment

Disease

Causes

Treatments

Worsen negative and cognitive deficits
Inefficient in 30% patients

Absolute need to improve treatment
improve animal models validity

New 3-hit model

Genetic factors

Early environmental factors

Late environmental factors

1. Partial MAP6 deletion
Andrieux et al., 2002

2. Maternal separation PND9-24h
Ellenbroek et al., 1998
Bouet et al., 2011

3. THC during adolescence
Rubino et al., 2009
O’Tuataigh et al., 2010

Exploration

Working memory

Sociability

Pre-Pulse Inhibition

Density of parvalbumin-positive neurons in CA1 of hippocampus

Magnetic resonance imaging (MRI)

Cortical thickness

Less axons, less myelin in corpus callosum

Immunohistochemistry

Antipsychotics (lurasidone) reduces variability and normalize behavioral performances (ongoing study)

The 3-hit combination causes negative- and cognitive-like symptoms together with brain alterations mimicking what is observed in schizophrenic patients

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