

cutting edge research for decoding psychiatric disorders

Researchers and psychiatrists of the **National Centre of Competence in Research *synapsy*** have joined forces to study the biological basis of psychiatric disorders.

In order to offer patients new perspectives of a cure and a higher quality of life, this **innovative union** between psychiatry and neurobiology is seeking to better understand the origins of mental disorders, and thus settle upon better diagnosis and treatments.



who we are

Created in 2010 and funded by the Swiss National Science Foundation the **National Centre of Competence in Research *synapsy*** brings together researchers and clinicians from the EPFL, the Universities of Geneva, Lausanne and Basel, the Friedrich Miescher Institute for Biomedical Research (FMI) and the Psychiatry Departments of the University Hospitals of Lausanne and Geneva.

The **NCCR-*synapsy*** is managed by a group of prominent Swiss academics with Alexandre Dayer as Director and Pierre Magistretti as Co-Director, plus Camilla Bellone, Pico Caroni, Philippe Conus, Kim Do, Stephan Eliez, Carmen Sandi and Marie Schaer as members of the Steering Committee.

The Advisory Board includes Elisabeth Binder, René Hen, Karlen Lyons-Ruth, Michel le Moal, Kathleen Merikangas, Pat McGorry, Trevor Robbins and Katya Rubia.



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more info

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one unprecedented union for two major research axes

Through an innovative approach, researchers and clinicians are **combining forces** to work on a common goal: improving the diagnosis and treatment of mental disorders through a better understanding of the mechanisms contributing to their origin and development. For this purpose, **synapsy** projects are organized around two main research axes:

- Identifying genes involved in the vulnerability to mental disorders by exploring **biological factors** influencing development, from conception to the first few years of life.
- Exploring **environmental factors** associated with life experiences, likely to leave traces in the brain.

While many mental disorders are, to some degree, genetic in origin, the cultural, social and psychological context in which an individual is raised also influences their development. The challenge faced by the **NCCR-synapsy** is to sort out the role that each of these factors plays in the origin and development of mental illnesses.

a new look at the treatment of mental disorders

Current therapies combine medication, psychological or psychiatric counseling and social support. Yet, mental illnesses are still notoriously difficult to treat.

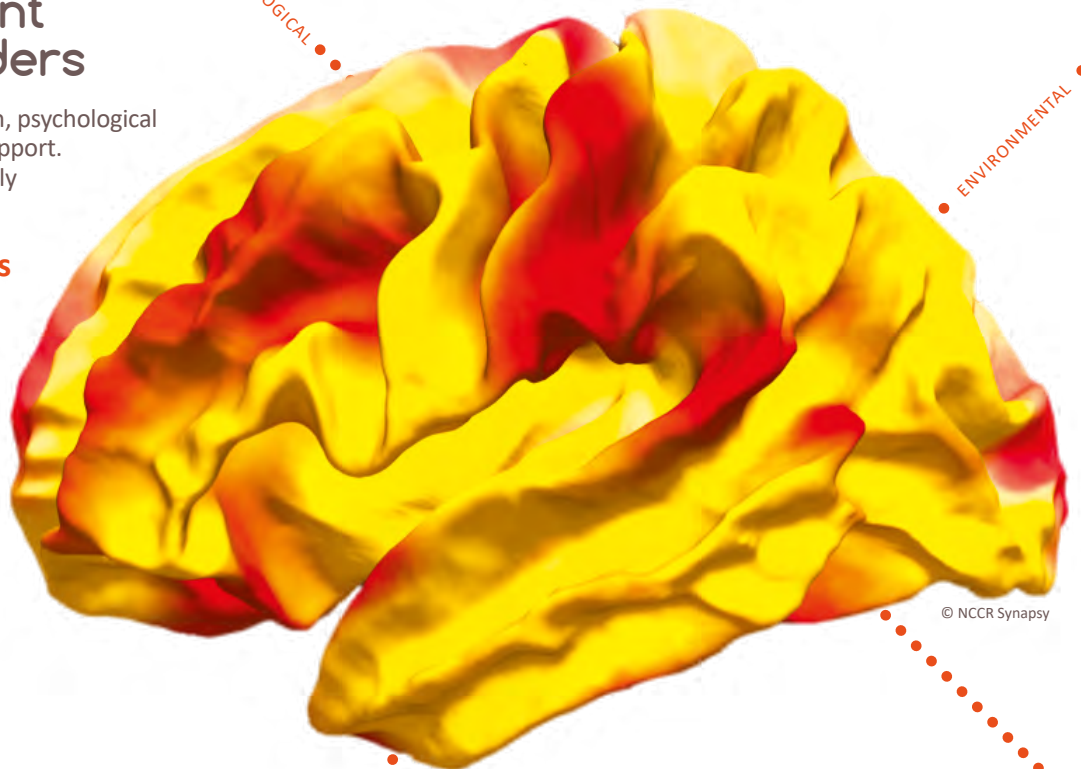
What causes these disorders and how do they develop?

Is the effect of psychotherapy measurable at the synaptic level?

How do the molecules in the different medications act on the brain?

How is the beneficial effect of combining different treatment methods translated in the brain?

NCCR-synapsy research opens new perspectives to answer these questions.



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nccr-synapsy approach and tools in the treatment of mental disorders

Key brain regions are mapped out, synapses and neurons therein examined, and connections between the latter elements investigated. Advance technologies further equip researchers with valuable new tools. **Rapid and inexpensive genomic sequencing techniques** allow a glimpse into individual's DNA. Brain imaging provides windows into active brains in a **non-invasive manner**. Laboratory techniques, moreover, allow scientists to observe and measure the activation of one single neuron or a cerebral circuit. All these measurements **lead to a better understanding** and provide novel insights into mental disorders.

fighting the stigmatization associated with mental disorders

One of the objective of the **NCCR-synapsy** is to **train a new generation of psychiatrists** able to speak both the language of psychiatry as well as that of neuroscience. The program supports the academic careers of young researcher-clinicians. **synapsy** is also committed to **sharing the mysteries of the brain with the public** and in that way fight the stigmatization often associated with mental disorders. **NCCR-synapsy** researchers are thus closely working with patient organizations and family groups as well as participating in numerous conferences or public events such as the **Brain Awareness Week**.