

Complex organ

Our brain is our most complex and fascinating organ. Everything we do, think and experience is stored in our brains. What mechanisms lie hidden in those one hundred billion nerve cells, with one hundred thousand kilometres of connections between them? What role do electrical signals, hormones and other chemical messengers play? What happens in individual cells, and how do they communicate with each other?



Techniques

The scientists at the Netherlands Institute for Neuroscience investigate these questions using tried and tested technical tools, such as neuroimaging and EEG. But they also work with state-of-the-art techniques: optogenetics, two-photon microscopy, viral vectors, laser dissection microscopy and microarray screening. In addition, they conduct research with laboratory animals to understand the functioning of basic processes in the living brain. And because a good understanding of our brain also requires a look inside the human brain, scientists study post-mortem human brain tissue that comes from brain donors. The Netherlands Brain Bank was founded for precisely that purpose.



Collaboration

The 100 researchers within the Netherlands Institute for Neuroscience are clustered in eighteen research groups. They work together with various universities and hospitals. The Netherlands Institute for Neuroscience is also a partner in the Spinoza Centre, a partnership that links together four hundred neuroscientists in the Amsterdam region.



Goal

All this research activity has a dual purpose: One: to understand at a fundamental level how brain mechanisms work. And two: find ways of combating physical and mental afflictions. Think of blindness, epilepsy, multiple sclerosis, Parkinson and Alzheimer, but also schizophrenia, depression and autism. These are all disorders that require intensive and lengthy research by highly qualified scientists. The brain harbours many secrets. It is our task to try to unravel them.

