

## **Julie Perroy - DR1 CNRS - Institute of Functional Genomics, Montpellier**

Julie Perroy is a neurophysiologist, with a strong interest in molecular and cellular biology. She obtained her PhD in 2001 under the co-direction of Laurent Fagni and Joël Bockaert at the University of Montpellier. Her work suggests that we cannot study the function of a receptor in isolation, but that we must consider its interactions with auxiliary proteins as signaling platforms (receptosome or functional unit).

At that time, methods to identify the dynamics of interactions and understand their functional consequences were lacking. To overcome this technological barrier, Julie Perroy did a post-doctoral fellowship at the University of Montreal in Canada in the laboratory of Michel Bouvier, where she participated in the technological developments of this pioneering laboratory in the study of the temporal dynamics of protein-protein interactions in living cells.

Appointed CNRS research fellow in 2004, then research director since 2012, she proposes biophysical developments to image, with subcellular resolution and in real time, the dynamics of protein-protein interactions and neuronal signaling involved in synaptic transmission and neuronal excitability.

The work of her team and collaborators shows that receptor function at synapses is tightly controlled by its ability to engage in protein-protein interactions creating versatile functional nanodomains with specific effectors. In particular, Shank3-containing complexes can control glutamate receptor function under physiological conditions and in psychiatric disorders such as Autism Spectrum Disorders (ASD). They are now implementing in vivo recording of cell signaling of neuronal ensembles in freely behaving mice, to understand how the molecular dynamics of synapses can control the functioning of neural networks and cognitive processes, in physiological and pathological conditions.

She is involved in the scientific community, for example as a member of the scientific council of INSERM, president of the scientific council of the Center of Excellence for Autism and Neurodevelopmental Disorders (CeAND) and member of the governing council of the French Neuroscience Society.