

## Christophe Mulle



Research Director CNRS since 1996

1976-1982: Ecole Normale Supérieure - Cachan (ENSET).

1981-1983: PhD "Neuroscience", Paris VII.

1995 HDR, Université Bordeaux 2

1995-2010 Director of the CNRS unit "Synapse Cellular Physiology".

Currently head of the "Physiology of glutamatergic synaptic transmission" team.

UMR CNRS 5297 "Institut Interdisciplinaire des Neurosciences", Bordeaux University

146 rue Léo Saignat, 33076 Bordeaux CEDEX.

tel : 05 57 57 40 86; fax : 05 57 57 40 82

email address : [mulle@u-bordeaux2.fr](mailto:mulle@u-bordeaux2.fr)

### Short biography

Christophe Mulle is a cellular neurobiologist with expertise in electrophysiology of synaptic transmission and an international leader in studies on glutamate receptors and hippocampal synaptic plasticity. He was among the first to identify and characterize functional nicotinic receptors in the mammalian brain while working in the laboratory of Jean-Pierre Changeux at the Pasteur Institute. He then generated knock-out mice for KAR subunits at the Salk Institute in the laboratory of Steve Heinemann, which have proven to be instrumental for understanding the function of these elusive glutamate receptors in synaptic function and plasticity. Since 1995, he has been guiding a CNRS laboratory in Bordeaux which is a dynamic scientific and technical environment to study glutamatergic synapses. The group has provided the first insights into the molecular events that govern the polarized trafficking of KARs, and has greatly contributed to understanding the mechanisms of synaptic integration and plasticity at hippocampal mossy fiber synapses. The research carried out in the group headed by Christophe Mulle ambitions to link cell biological mechanisms of protein trafficking and function to synaptic physiology and dysfunction. The group has two main focuses, the mechanisms underlying the specification of synaptic properties in CA3 pyramidal cells and the operation and plasticity of local cortical circuits (mainly CA3) in the context of episodic-like memory encoding. Great efforts are made to implement these questions at an integrated level in the mouse and to develop methods for interrogating the connectivity and function of local circuits *in vivo* in behavioural conditions. These studies address control conditions as well as models of cognitive disorders such as Alzheimer's disease. A unique strength of the host laboratory is its ability to implement interdisciplinary studies, bridging molecular and cellular techniques to physiological questions, to answer timely issues in neuroscience.

**Bibliography** : >90 articles in peer review journals. H factor = 41; >5500 citations, mean number of citations per article = 57

2007-2014 : **36 invited conferences** in international meetings.

2007-2012 : **Organization or co-organization of 12 international meetings**, including Gordon Research Conference (2008, 2009), and founder of the « European Synapse meeting » series (2008, 2009, 2011, 2013), Conférence Jacques Monod (2014 and 2016).

#### 2007-2014 : **Training activities**

- Founder and organizer of ESCube (European Synapse Summer School), Bordeaux FENS/IBRO Training Center 2006, 2007, 2008, 2009, 2011, 2013.
- Member of the steering committee of Erasmus Mundus Doctoral programme (coordination Arjen Brussaard, Amsterdam).
- Coordinator of SYMBaD, Marie Curie ITN program, 7<sup>e</sup> PCRD, 6 academic centers, 5 private companies, 5 millions €
- Supervision > 30 PhD students and post-docs
- Director of the Bordeaux School of Neuroscience

#### **Other administrative duties**

2007- : Member of the Scientific advisory board of ERA-NET "Neuron".

2007-: Executive Director « Bordeaux Neurocampus » Federation

2010- 2014: Member of Scientific Council of the « Fondation pour la Recherche Médicale »

2012-2013: Chair of the ANR (French national agency for research) Neuroscience committee.

2011-2015: President-elect and President (2013-2015) of the Société des Neurosciences.

2014-: Founder and director of the Bordeaux School of Neuroscience in partnership with FENS and IBRO, through the Cajal Advanced Neuroscience Training program.

#### **5 recent publications**

1. Rebola N, Carta M, Lanore F, Blanchet C, **Mulle C** (2011) NMDA receptor-dependent metaplasticity at hippocampal mossy fiber synapses. **Nat Neurosci** 14:691-693.
2. Veran J, Kumar J, Pinheiro PS, Athané A, Mayer ML, \*Perrais D and \***Mulle C** (2012) Zinc Potentiates GluK3 Glutamate Receptor Function by Stabilizing the Ligand Binding Domain Dimer Interface. *\*equal senior authors* **Neuron** 76, 565–578.
3. Carta, M., Opazo, P., Veran, J., Athané, A., Choquet, D., \*Coussen, F., and \***Mulle, C.** (2013). CaMKII-dependent phosphorylation of GluK5 mediates plasticity of kainate receptors. **The EMBO Journal** 32, 496–510. *\*Equal contribution*
4. Carta M\*, Lanore F\*, Rebola N\*, Szabo Z, Viana Da Silva S, Lourenço J, Verraes A, Nadler A, Schultz C, Blanchet C, **Mulle C** (2014) Membrane lipids tune synaptic transmission by direct modulation of presynaptic potassium channels. **Neuron**, 81:787–.
5. Vergnano A, Rebola N, Savtchenko L, Pinheiro P, Kieffer B, Rusakov D, \***Mulle C** and \*Paoletti P (2014). Zinc dynamics and action at excitatory synapses. *\*equal senior authors* **Neuron** 82, 1101–1114.