

Carlos Matute's Biosketch

While completing my graduation in Physics I met my PhD advisor, Prof. Luis Martínez-Millán. He instilled in me a fascination for the brain while teaching me chemical neuroanatomy at Zaragoza, near to my home village. Later on, I did two postdoctoral stays for an overall period of 8 years, first at the Brain Research Institute in Zürich (Profs. Cuénod and Streit), then at the University of California Irvine (Prof. R. Miledi). These stays helped me to get a broad multidisciplinary expertise in neurosciences from molecules to systems. Most importantly, I learned to focus on specific topics which were mostly unknown at the time.

After returning to Spain from UC Irvine in 1988, I founded the Laboratory of Neurobiology at the University of País Vasco. The focus of the laboratory was (and still is) to study the cell biology of neurotransmitter receptors present in glia (astrocytes, oligodendrocytes, and microglia) as well as their functional and pathological relevance. At the late 1980's this was only an emerging concept to which I contributed substantially. Importantly, along with my lab mates, I developed and proved the concept that excessive activation of excitatory receptors can be deleterious to oligodendrocytes, and cause demyelination in multiple sclerosis and stroke.

In turn, in the last ten years we have demonstrated that neurotransmitter receptors in microglia and oligodendrocytes contribute to energy metabolism, tame neuroinflammation as well as promote myelin repair after demyelination, findings that are most relevant to translational neuroscience.

My laboratory has also identified molecular and cellular mechanisms occurring in neurons and glia that contribute to the pathophysiology of Alzheimer's disease and Parkinson's. This includes the aberrant activity of NMDA receptors in neurons, mitochondrial damage to astrocytes, alterations in myelin and oligodendrocyte lineage, as well as disease propagation via the astroglia syncytium.
