

Dr Vasiliki Kyrargyri
Postdoctoral Researcher
Email: v.kyrargyri@pasteur.gr

OVERVIEW

A senior postdoctoral researcher with a BSc in Biology and PhD in Neuroimmunology from the Medical School in Athens, in collaboration with the Hellenic Pasteur Institute.

She is currently working in the Department of Immunology and the laboratory of Molecular Genetics at the Hellenic Pasteur Institute with Dr. Lesley Probert. Her principal research interest is the role of brain microglia in health and neurodegenerative diseases, such as Multiple Sclerosis (MS). She studies microglia and other CNS cells and cellular networks using molecular and immunological techniques with a main expertise in fluorescent microscopy, in intravital two-photon imaging and computational analysis of cellular dynamics.

She recently run her own independent project under the 1st postdoctoral call of the Hellenic Foundation for Research & Innovation (H.F.R.I.), called MicroMS:

Microglia-driven pathology and altered brain surveillance in demyelination

Microglia, the brain macrophages, have pleiotropic functions in health and disease. They are highly motile cells that constantly extend and retract their processes to perform brain surveillance, an homeostatic function by which they scan the tissue for possible infections, tissue damage and other pathological insults to resolve them. In pathology, they change their morphology and functions and they could have both beneficial and detrimental roles depending on the disease context. The aim of this project is to develop novel transgenics, imaging techniques, particularly intravital two-photon imaging, and bioinformatics approaches to investigate the role of microglia in MS models in mice, such as the Experimental Autoimmune Encephalomyelitis (EAE) and the cuprizone model of demyelination and remyelination. Also, by using genetic approaches, molecular techniques and gene analysis another aim is to differentiate the role of microglia versus other myeloid cells in initiation and progression of the MS pathology.

FUNDING

Hellenic Foundation for Research and Innovation (H.F.R.I.), 2018-2021. MicroMS project (Act 1156). Awarded with a research fund to run a 3-year postdoctoral research project (Act 1156) as principal investigator. €180.000.

Theodorou Theochari Kotsika Foundation, 2013-2014, One-year scholarship to spend part of the PhD in the Department of Neurosciences (Head Prof. Jose Maria Delgado), Pablo de Olavide University, Spain. €20.000.

Hellenic Pasteur Institute, 2008-2011. Three-year scholarship for PhD studies in the Laboratory of Molecular Genetics at Hellenic Pasteur Institute in Athens.

European Union scholarship (COST-STSM-BM0603-NEURINFNET), 2011. Grant for a research visit at the department of Neuroscience, Physiology and Pharmacology (Head Prof. David Attwell), University College London, United Kingdom. €3.000

European Union scholarship (COST-STSM-B30-04392-NEREPLAS), 2009. Grant for a research visit at the department of Medicine (Head Prof. Ana Maria Sebastiao), Egas Moniz research centre, Lisbon, Portugal. €3.000

PUBLICATIONS

2021

Roufagalas I, Avloniti M, Fortosi A, Xingi E, Thomaidou D, Probert L, **Kyrargyri V**. Novel cell-based analysis reveals region-dependent changes in microglial dynamics in grey matter in a cuprizone model of demyelination. *Neurobiol Dis.* 2021 Sep;157:105449. DOI: 10.1016/j.nbd.2021.105449.

2020

Kyrargyri V, Madry C, Rifat A, Arancibia-Carcamo IL, Jones SP, Chan VTT, Xu Y, Robaye B, Attwell D. P2Y₁₃ receptors regulate microglial morphology, surveillance, and resting levels of interleukin 1 β release. *Glia*, 68(2):328-344 <https://doi.org/10.1002/glia.23719>

2019

Kyrargyri V, Attwell D, Jolivet RB, Madry C. Analysis of Signaling Mechanisms Regulating Microglial Process Movement. *Methods Mol Biol*, 2034:191-205. https://doi.org/10.1007/978-1-4939-9658-2_14

Nortley R, Korte N, Izquierdo P, Hirunpattarasilp C, Mishra A, Jaunmuktane Z, **Kyrargyri V**, Pfeiffer T, Khennouf L, Madry C, Gong H, Richard-Loendt A, Huang W, Saito T, Saido TC, Brandner S, Sethi H, Attwell D. Amyloid β oligomers constrict human capillaries in Alzheimer's disease via signalling to pericytes. *Science*, 19;365(6450). <https://doi.org/10.1126/science.aav9518>

2018

Papazian I., **Kyrargyri V.**, Evangelidou M., Probert L. Mesenchymal stem cell protection of neurons against glutamate excitotoxicity involves reduction of NMDA-triggered calcium responses and surface GluR1, and is partly mediated by TNF. *Int J Mol Sci.*, 25;19(3). <https://doi.org/10.3390/ijms19030651>

Madry C, Arancibia-Carcamo IL*, **Kyrargyri V***, Chan VTT, Hamilton NB, Attwell D. Effects of the ecto ATPase apyrase on microglial ramification and surveillance reflect cell depolarization, not ATP depletion. *PNAS*, 13:115(7)E1608-E1617. <https://doi.org/10.1073/pnas.1715354115>

* Equal contribution as 1st author

Madry C*, **Kyrargyri V***, Arancibia-Carcamo IL, Jolivet R, Kohsaka S, Bryan RM, Attwell D. Microglial Ramification, Surveillance, and interleukin-1 β release are

regulated by the two pore domain K⁺ channel THIK-1. *Neuron*. Jan17;97(2):299-312.
<https://doi.org/10.1016/j.neuron.2017.12.002>

* Equal contribution as 2nd author

2015

Kyrargyri V., Vega Flores G., Gruart A., Delgado JM., Probert L. Differential contributions of microglial and neuronal IKK β to synaptic plasticity and associative learning in alert behaving mice. *GLIA*, 63(4):549-66.

<https://doi.org/10.1002/glia.22756>

2012

Voulgari-Kokota A, Fairless R, Karamita M, **Kyrargyri V**, Tseveleki V, Evangelidou M, Delorme B, Charbord P, Diem R, Probert L. Mesenchymal stem cells protect CNS neurons against glutamate excitotoxicity by inhibiting glutamate receptor expression and function. *Exp Neurol*, 236(1):161-70.

<https://doi.org/10.1016/j.expneurol.2012.04.011>