

Vassilis Kehayas

Personal Data

Date of Birth: 23/01/1984
Place of Birth: Athens, Greece
Nationality/Citizenship: Greek
Marital Status: Married, with two children
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Experience and Education

Post-doctoral Researcher (March 2022 – Present)

ICS-FORTH, Laboratory of Panagiotis Simos

Post-doctoral Researcher (February 2019 – March 2022)

ICS-FORTH, Laboratory of Maria Papadopouli

Post-doctoral Researcher (January 2017 – December 2017)

University of Geneva, Laboratory of Anthony Holtmaat

Ph.D. in Basic Neuroscience (2010 – 2016)

University of Geneva, Advisor: Anthony Holtmaat

M.Sc. in Brain and Mind Sciences (2008 – 2010)

University of Crete, National & Kapodistrian University of Athens, Foundation for Research and Technology–Hellas

Thesis advisors: Kyriaki Sidiropoulou, Panayiota Poirazi

B.Sc. in Biology (2002 – 2008)

University of Crete

Thesis Advisor: Yannis Dalezios

Peer-Reviewed Publications

- Georgiou, C., **Kehayas, V.**, Lee, K.S., Brandalise, F., Sahlender, D.A., Blanc, J., Knott, G., Holtmaat, A., (2022) A subpopulation of cortical VIP-expressing interneurons with highly dynamic spines. *Commun Biol* 5, 352.
- Frangeul L., **Kehayas V.**, Sanchez-Mut J.V., Krishna K., Pouchelon G., Telley L., Bellone C., Holtmaat A., Gräff J., Macklis L., and Jabaudon D. (2017) Input-dependent regulation of excitability controls dendritic maturation in somatosensory thalamo-cortical neurons. *Nat Commun.* 2017;8(1):2015.
- Gambino F., Pagès S., **Kehayas V.**, Baptista D., Tatti R., Carleton A., and Holtmaat A. (2014) Sensory-evoked LTP driven by dendritic plateau potentials in vivo. *Nature.* 515, 116–119.

Invited Articles

- **Kehayas V.**, Holtmaat A. (2017). Rejuvenating brain plasticity. *Science*. 356, 9–11.
- **Kehayas V.**, Holtmaat A., (2017). Structural Plasticity and Cortical Connectivity. In van Ooyen A., Butz M. (eds), *The rewiring brain: A Computational Approach to Structural Plasticity in the Adult Brain.*, pp. 3–26.
- **Kehayas V.**, Holtmaat A. (2015). Dissonant Synapses Shall Be Punished. *Neuron*. 87, 245–247.

Scientific Posters in International Conferences

- **Kehayas V.**, Makedona, E.-A., Palagina, G., Mousouros, O., Smyrnakis, I., Smirnakis, S.M., Papadopouli, M., 2020. Temporal structure of spontaneous cortical networks in layer 2/3 of the primary visual cortex of the mouse, in: Research in encoding and decoding of neural ensembles. *AREADNE*, Santorini, p. 103.
- Georgiou C., Sahlender D., **Kehayas V.**, Knott G.K., Holtmaat A. (2016). Long-term imaging in vivo of spine dynamics on a putative VIP disinhibitory neuronal subclass. *Australasian Neuroscience Society Annual Scientific Meeting*, Hobart, Australia.
- **Kehayas V.**, Chuckowree J., Cane M., Welker E., Holtmaat. A., and Knott. G. (2015). Spine outgrowth and stabilization on cortical pyramidal dendrites correlates with the presence of shaft synapses. *Society for Neuroscience Annual Meeting*, Chicago, USA.
- **Kehayas V.**, Gambino F., Baptista D., Pagès S. and Holtmaat A. (2014). The coincident activation of lemniscal and paralemniscal inputs can drive synaptic plasticity in layer 2/3 pyramidal neurons of the mouse somatosensory cortex in vivo. *Front. Syst. Neurosci. Conference Abstract: 4th NAMASEN Training Workshop - Dendrites 2014*. Heraklion, Greece.
- Gambino F., **Kehayas V.**, Pagès S., and Holtmaat A. (2013). Nonlinear paralemniscal thalamic inputs mediate whisker-evoked heterosynaptic plasticity in the somatosensory cortex. *4th European Synapse Meeting*, Bordeaux, France.

Working papers

- **Kehayas V.**, Antypa D., Kagialis A., Maris. T. E., Papadaki E., Simos P. Changes in functional connectivity of cortical brain networks during verbal learning in humans.
- **Kehayas V.**, Palagina G., Mousouros O., Smyrnakis I., Smirnakis S. M., Papadopouli M. Temporal structure of spontaneous cortical networks in layer 2/3 of the primary visual cortex of the mouse.
- **Kehayas V.**, Chuckowree J., Cane M., Welker E., Holtmaat. A., and Knott. G. Shaft-synapse survival is affected by their proximity to new spines.
- **Kehayas V.**, Gambino F. and Holtmaat A. The coincident activation of the lemniscal and paralemniscal pathways leads to spine shrinkage in the barrel cortex of the mouse.

Fellowships and awards

- Marie Curie Individual Fellowship, Brain Networks in Learning (BNL), 2021-2023, grant 895465 (165,085 €)
- Stavros Niarchos ARCHERS Post-doctoral fellowship, 2019-2021
- Travel grant from the Lemanic Neuroscience Doctoral School to attend the Society for Neuroscience 2015 meeting
- Full registration waiver for the DENDRITES 2014 meeting
- Marie Curie fellow: Initial Training Network SyMBaD, 2010 – 2013, (EU FP7-PEOPLE-ITN Marie Curie, grant 238608)

Teaching & Supervision Experience

- Co-supervised 2 master's students
- Taught in "Analysis and Modeling of Brain Networks" graduate course

Computational Skills

- Numerical Data: MATLAB, R
- Image and Graphics: ImageJ, GIMP, Inkscape, Blender
- Miscellaneous: Markdown, Git, Dynamic notebooks (RMarkdown, Jupyter), Continuous Integration pipelines
- Operating Systems: System Administrator of Debian-Based Servers, proficient user of macos and Windows

Experimental Skills

- Imaging: Two-photon, Confocal, Epifluorescence, and Transmission Electron Microscopy, Intrinsic Signal Optical Imaging
- Electrophysiology: *In vivo* Single-Unit, Multi-Unit, and Local Field Potential, *In vitro* Field Potential
- Surgical: Cranial window, Optical fiber implants, viral (AAV) injections, Fixation Perfusion
- Molecular: Polymerase Chain Reaction, Mini-prep, Immunohistochemistry, Co-Immunoprecipitation, Western blot
- Miscellaneous: Mouse breeding, Vibratome

Intellectual Interests

- Scientific: Brain function/structure associations, Effects of learning on the brain
- Analytic: Bayesian and frequentist multilevel (mixed) linear models, Graph theory, network simulation, image processing, data visualization
- Causes: open science practices, scientific communication, sustainability, social governance

Languages

- Greek: Native Speaker
- English: Full Professional Proficiency
- French: Limited Professional Proficiency

Volunteer Work

Contributed in peer-review of papers submitted in scientific journals (Nature, Nature Neuroscience, Neuron, PNAS, Journal of Neuroscience), open source projects (synthing, syncTrayzor, ownCloud, Prey, hugo-academic, Aletheia, highlight.js, alpine-r-doc), R packages: JM, sjPlot, DHARMA, brms), Wikipedia.org, StackExchange.com (Biology, Statistics).

Online profiles

