

# ORIOLO PAVÓN AROCAS

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## Education

- 2016 – present **Wellcome Trust 4-Year PhD in Neuroscience**  
Sainsbury Wellcome Centre for Neural Circuits and Behaviour  
University College London, UK  
*Supervisor: Dr Tiago Branco*
- 2013 – 2015 **Master of Science (M.Sc.), Neurosciences**  
Elite Network of Bavaria, Graduate School of Systemic Neurosciences  
Ludwig-Maximilians-Universität München, Germany  
GPA: 1.31 (German system)
- 2009 – 2013 **Bachelor of Science (B.Sc.), Biomedical Sciences**  
Universitat Autònoma de Barcelona (UAB), Bellaterra (Barcelona), Spain  
GPA: 8.39/10

## Professional experience

9. 2017 – present **PhD Thesis | Inhibition in the Periaqueductal Gray**  
*Sainsbury Wellcome Centre for Neural Circuits and Behaviour, University College London, UK*  
For my PhD I am combining behaviour, electrophysiology, and single-cell RNA sequencing to investigate the role of inhibition and to characterise the different cell types in a midbrain circuit for innate defensive behaviours.  
*Thesis director: Dr Tiago Branco*
5. 2017 – 7. 2017 **PhD Rotation 3 | Whole-brain activity maps of drug-induced sleep rebound in larval zebrafish**  
*Department of Cell and Developmental Biology, University College London, UK*  
Followed a combinatorial approach including behavioural assays, immunohistochemistry, two-photon imaging, and registration of whole-brain activity maps to investigate sleep regulation in zebrafish.  
*Supervisor: Dr Jason Rihel*
2. 2017 – 4. 2017 **PhD Rotation 2 | Inhibition in the Periaqueductal Gray**  
*Sainsbury Wellcome Centre for Neural Circuits and Behaviour, University College London, UK*  
Employed targeted somatic cell-attached and whole-cell recordings, ChR2-assisted circuit mapping, electrical stimulation, and pharmacology to study the properties and connectivity of VGAT+ neurons in a midbrain circuit involved in the computation of innate defensive behaviours.  
*Supervisor: Dr Tiago Branco*
11. 2016 – 1. 2017 **PhD Rotation 1 | Noradrenergic modulation of astrocytic glutamate uptake currents**  
*Department of Neuroscience, Physiology and Pharmacology, University College London, UK*  
Combined whole-cell patch-clamp recordings with pharmacology in acute brain slices of rat hippocampus to study the glutamate uptake currents of astrocytes and their regulation by neuromodulators.  
*Supervisor: Prof Dr David Attwell*
3. 2015 – 9. 2015 **M.Sc. Thesis | Sleep regulation in *Drosophila***  
*Centre for Neural Circuits and Behaviour, DPAG, University of Oxford, UK*  
For my M.Sc. Thesis I established a photoactivatable GFP-based tracing method combined with two-photon laser scanning microscopy to map the neuronal circuitry involved in the homeostatic regulation of sleep in *Drosophila*.  
*Thesis directors: Prof Dr Gero Miesenböck and Prof Dr Alexander Borst*

1. 2015 – 3. 2015 **M.Sc. Rotation 3 | Neuronal mechanisms of vocal patterning in the catfish *Ariopsis seemani***  
*Division of Neurobiology, Faculty of Biology, LMU München, Germany*  
 Establishment of a whole-brain preparation for *in vitro* electrophysiology to study the neuronal mechanisms of vocal patterning in the catfish *Ariopsis seemani*.  
*Supervisor: Dr Boris Chagnaud*
10. 2014 – 12. 2014 **M.Sc. Rotation 2 | Calcium dynamics in the axon initial segment**  
*Dept. Axonal Signalling, Netherlands Institute for Neuroscience, Amsterdam, Netherlands*  
 Combined whole-cell patch-clamp recordings with OGB-1-based calcium imaging and pharmacology to study the calcium dynamics underlying action potential generation in the axon initial segment of layer V pyramidal neurons of somatosensory cortex in acute brain slices of mice and rats.  
*Supervisors: Prof Dr Maarten H.P. Kole and Dr Marko Popovic*
2. 2014 – 4. 2014 **M.Sc. Rotation 1 | Optogenetic manipulation of the lateral septum in mice selectively bred for high anxiety-related behaviour**  
*Neuronal Plasticity Group, Max Planck Institute of Psychiatry, München, Germany*  
 Performed bilateral injections of AAV constructs carrying Archaelhodopsin to ventral hippocampal cells projecting to the lateral septum to assess the effects of optogenetic inhibition of these projections on anxiety-related behaviour in the open field and elevated plus maze tests.  
*Supervisor: PD Dr Carsten Wotjak*
10. 2012 – 6. 2013 **B.Sc. Thesis | Potentiation and recovery of memory by ICSS in rats**  
*Institute of Neurosciences, Universitat Autònoma de Barcelona, Spain*  
 Stereotaxic surgeries to implant electrodes in the medial forebrain bundle in the lateral hypothalamus and to perform electrolytic lesions in the lateral amygdala. Performed behavioural training of rats in a two-way shuttle box active avoidance-conditioning task followed by intracranial self-stimulation (ICSS) in a Skinner box.  
*Supervisor: Dr Pilar Segura Torres*

## Additional experience

4. 2014 – 10. 2014 Research assistant at the group of **Prof Dr Benedikt Berninger** investigating the role of Sox2 in direct lineage reprogramming of astroglia and pericytes to neurons.  
*Institute of Physiology, Dept. Physiological Genomics, LMU München, Germany*
8. 2012 Research exchange student (IFMSA) with **Prof Dr M. Zafer Gören** studying the effects of the GABAergic system in DMH of rats with haemorrhagic shock.  
*Dept. of Medical Pharmacology, Faculty of Medicine, Marmara University, Istanbul, Turkey*
10. 2011 – 12. 2011 Research internship with **Dr Elisa Martró** investigating the genetic variability of the hepatitis C genotype 1 virus in relation to the antiviral treatment response.  
*Dept. of Microbiology, Hospital Universitari Germans Trias i Pujol, Badalona, Spain*
8. 2011 – 9. 2011 Summer internship at the group of **Dr Ruben López-Vales** learning molecular biology and histology techniques to study a murine model of spinal cord injury.  
*Institute of Neurosciences, Universitat Autònoma de Barcelona, Spain*
7. 2011 Summer internship with **Dr Rosa Mirapeix** performing micro- and macro-dissections of the human Central Nervous System.  
*Faculty of Medicine, Universitat Autònoma de Barcelona, Spain*

## Fellowships & Awards

- 2016 – 2020 **Wellcome Trust 4-Year PhD in Neuroscience** at University College London
- Wellcome Trust 4-Year Doctoral Programme in Neuroscience** (M.Sc. + DPhil) at University of Oxford (Declined)
- DPhil in Ion Channels and Membrane Transport in Health and Disease** (OXION) funded by the University of Oxford (Declined)
- MRes/PhD in Developmental Neurobiology** at King's College London (Declined)
3. 2015 – 9. 2015 Erasmus+ Traineeship Scholarship for the M.Sc. Thesis Project in Oxford  
*European Commission*
8. 10. 2014 **Poster Award** – Rookie of the Year 2014 (best poster for a M.Sc. student)  
*GSN Symposium, Graduate School of Systemic Neurosciences, LMU Munich*
10. 2014 – 12. 2014 Erasmus+ Traineeship Scholarship for the M.Sc. Rotation 2 in Amsterdam  
*European Commission*

## Teaching & Mentoring

- 2017 - present S. F. Olesen, M.Sc. Neuroscience Thesis, UCL
- Summer Semester 2014 Organised and coordinated a weekly Journal Club on Learning and Memory for the M.Sc. Neurosciences at the GSN-LMU in Munich

## Skills & Competences

- Technical skills Loose-seal and whole-cell patch clamp recordings in acute brain slices.  
Single-cell RNA sequencing from manually aspirated cells via patch pipettes.  
Two-photon laser scanning microscopy, photoactivatable GFP tracing.  
Simultaneous patch-clamp recordings and calcium imaging in acute brain slices.  
Optogenetics, behavioural and pharmacological assays, stereotaxic surgeries.  
Confocal microscopy, cryostat and vibratome slicing, immunohistochemistry.  
Molecular biology (PCR, DNA/RNA extraction, western blot, electrophoresis).  
Animal models: rat, mouse, zebrafish, catfish, *Drosophila*, leech, *Xenopus laevis*.
- Programming skills Python and MATLAB for data analysis, modelling, *in silico* screening for *Drosophila* transgenic lines, and registration of larval zebrafish brain stacks.
- Software LabView, Axograph, IGOR Pro, and pCLAMP for electrophysiology.  
PrairieView, ScanImage, and Neuroplex-IDL for calcium imaging and two-photon microscopy.  
Image J, Amira 3D, Adobe Illustrator, and Affinity Designer for microscopy image analysis and figure preparation.
- Languages Native in **Catalan** and **Spanish**  
Proficient in **English** (CAE Grade B)  
Basic **German** (A2)

## Writing & Editing

- 7. 2017 – present Section editor at [Bright Brains](#), newsletter by the British Neuroscience Association
- 06. 2017 Official blogger for the [2017 UCL Neuroscience Symposium](#)
- 05. 2016 Finalist at [YabberXDivulgame](#), a science writing and communication competition
- 10. 2015 – present Blogger at [La Neurona Errant | A neuroscientist point of view](#)  
I have also collaborated with and written at [Neuromag](#), [Phenotype](#), [Principia](#), [GSN Munich](#), [SharpMinds](#), and [En Clave Biomédica](#)
- 7. 2015 – 2. 2017 Page editor at [Phenotype](#), Journal of the Oxford University Biochemical Society
- 9. 2014 – 11. 2015 Member, Science Communicator and Web Designer of Asociación Juvenil de Biomédicos (UAB) – [En Clave Biomédica](#)
- 05. 2007 Finalist at [Ficcions](#), a writing competition for High School students

## Additional courses

- 10. 2015 – 12. 2015 “Introduction to Programming with MATLAB”, *Vanderbilt University via Coursera*
- 3. 2013 – 7. 2013 “Synapses, Neurons and Brains”, *Hebrew University of Jerusalem via Coursera*
- Winter 2012 “Drugs and the Brain”, *California Institute of Technology via Coursera*
- 7. 2011 “The Neurodegenerative Disease” and “Stem Cells: from theory to clinics”  
Two 20 hours Courses, *III University of Barcelona International Summer School, Spain*
- 6. 2008 Physis 2008, 1<sup>st</sup> Physics Summer Camp, *University of Barcelona, Spain*

## Extracurricular activities

- 9. 2017 – present Treasurer of the University of London Judo Club, *London, UK*
- 7. 2012 Volunteer staff at the **8th FENS Forum of Neuroscience**, *CCIB, Barcelona, Spain*
- 13. 07. 2013 Judo black belt 2nd DAN
- 1994 – 2007 Clarinet player and music student at *Music School of Sant Joan de Vilatorrada, Spain*