

# Mariangela Panniello

Marie Sklodowska-Curie Fellow  
Istituto Italiano di tecnologia (IIT)  
Genova

M:ITA

Birthdate:

January 4th 1986

Address:

## Research Experience

16<sup>th</sup> Oct 2021 - Present

### **Marie Sklodowska-Curie Fellow**

#### **Neuroscience Department; Italian Institute of Technology**

Recipient of the competitive Marie Sklodowska-Curie Individual Fellowship offered by the European Commission under the Horizon2020 program to excellent experienced researchers who are willing to move across Countries.

Research is carried out within the research group led by Dr Tommaso Fellin at IIT - Genova

I am responsible for leading research, liaising with collaborators, supervising MSc and/or PhD students. Teaching responsibilities are also included in the fellowship (see Teaching Experience)

Grant agreement number 101024523 (EnlightenedLoom). Letter of invitation for the Grant Agreement Preparation received on 8 February 2021, from the European Commission Research Executive Agency.

Project title: Multimodal optical interrogation of neural activity and neuromodulation during sequence processing

End of fellowship: 15 October 2023

16<sup>th</sup> Oct 2019 – 15<sup>th</sup> Oct 2021

**Post-doctoral Research Scientist in Neuroscience  
Neuroscience Department; Italian Institute of Technology**

Research Group Leader: Dr Tommaso Fellin

Investigating the neural basis of perception and action in the rodent cortex. Application of optical strategies to monitor and manipulate brain activity during sensory paradigms.

Research outputs:

- Sità et al., 2022, Nature Communications. doi: 10.1038/s41467-022-29180-0
- Duffet et al, 2022, Nature Methods. doi: 10.1038/s41592-021-01390-2.

15<sup>th</sup> Oct 2019 – 31<sup>th</sup> March 2021

**Visiting Scientist  
University of Oxford**

Remote collaboration with Dr Kerry Walker on studies related to the functional organization of auditory cortex in mice and ferrets.

1<sup>st</sup> Sept 2019 – 12<sup>st</sup> Oct 2019

**Post-doctoral Research Scientist**

**University of Glasgow** (day-to-day work carried out at the University of Oxford)

Research Group Leader: Dr Michael Kohl

Investigating the contribution of individual cortical layers to somatosensory perception. Two-photon imaging during sensory discrimination paradigms. **Co-supervisor** for 1 PhD student and 1 MSc student.

Research outputs:

- Akam et al., 2022, eLife. doi: 10.7554/eLife.67846
- Panniello et al., 2022 – Imaging Somatosensory Cortex: rodents. Chapter 19 of the book “Methods in Somatosensory research. Springer. *Under editorial review*

15<sup>th</sup> Dec 2016 – 31<sup>st</sup> Aug 2019

**Post-doctoral Research Scientist in Systems Neuroscience  
University of Oxford**

Research Group Leader: Dr Michael Kohl

Investigating the contribution of individual cortical layers to somatosensory perception. Two-photon imaging during sensory discrimination paradigms. **Co-supervisor** for 1 PhD student, 3 MSc students and 1 BSc student.

Research outputs:

- Panniello et al., 2022 – *in preparation*. Experience shapes how stimulus information guides choice in primary somatosensory cortex
- Chong et al., 2019, Biomedical Optics Express. doi: 10.1364/BOE.10.000267

2<sup>nd</sup> May 2011 – 3<sup>rd</sup> Oct 2011

### **Research Assistant**

#### **NEST - Scuola Normale Superiore di Pisa**

Research Group Leader: Dr Gianmichele Ratto

Collaborating with senior researchers on in vivo optical and electrophysiological investigation of cortical plasticity.

## **Teaching Experience**

Academic year 2021 – 2022

### **Lecturer for the PhD program in Bio-Robotics and Engineering University of Genova**

Course title: Introduction to Modern Neurophysiology. Responsible for preparing and delivering lectures, marking assignments and final exam. Course held in February-March 2022.

1<sup>st</sup> Oct 2018 – 30<sup>th</sup> Sept 2019

### **Stipendiary Lecturer in Neuroscience**

#### **St Peter's College; University of Oxford**

Tutorial lecturer in Neurophysiology for Year 2 and 3 Medical students. Co-leader of admission interviews for both Conventional Medicine Course and Graduate Entries in Medicine. **Co-administrator** of the undergraduate course in Medicine together with a senior College fellow. **Responsible for the pastoral care** of both undergrad and grad medicine students. Part of School Outreach Team, working towards raising University aspirations for girls and boys in disadvantaged areas of south-east England.

## **Education**

13<sup>th</sup> Oct 2012 – 4<sup>th</sup> November  
2017

### **DPhil in Physiology, Anatomy and Genetics**

#### **University of Oxford (Lincoln College)**

Supervisors: Prof Andrew King; Dr Kerry Walker

Awarded a Newton-Abraham studentship in Medical, Biological and Chemical Sciences by the University of Oxford (date of the award: March 2012, duration 3.5 years, starting October 2012)

Investigating the fine-scale spatial organization of neuronal activity in the auditory cortex of rodents and carnivores using optical imaging techniques. **Co-supervisor** for 3 BSc students. Passed exam without further corrections on 21<sup>st</sup> March 2017. Degree awarded 4<sup>th</sup> November 2017

#### Research outputs:

- Gaucher, Panniello et al., 2020, eLife. doi: 10.7554/eLife.53462
- Panniello et al., 2018, Cerebral Cortex. doi: 10.1093/cercor/bhx295

1<sup>st</sup> November 2011 – 1<sup>st</sup> Sept 2012 (interrupted; taken up offer from University of Oxford)

**PhD in Molecular Biophysics**  
**Scuola Normale Superiore di Pisa**

Supervisor: Dr Alessandro Gozzi

Design and screening of nanomolecules for drug-delivery across the blood brain barrier in models of neurodevelopmental conditions.

1<sup>st</sup> Feb 2009 - 18<sup>th</sup> Apr 2011

**MSc in Molecular Neurobiology**  
**Università degli Studi di Pisa**

Main subjects: Neurophysiology, Neuropathology, Ethology Neuroanatomy, Molecular Neurobiology. Experimental thesis carried out at NEST Laboratory - Scuola Normale Superiore. Title (translated): "The extracellular matrix as inhibiting factor of synaptic plasticity: in vivo effects of its degradation in visual cortex". Final grade: 110/110 with honours.

Research output:

- De Vivo, Landi, Panniello, et al., 2013. Nature Communications. doi: 10.1038/ncomms2491
- Albertazzi et al., 2012. Biomacromolecules. doi: 10.1021/bm301384y

1<sup>st</sup> Sept 2004 - 16<sup>th</sup> Dec 2008

**BSc in Biomedical Sciences**  
**Università degli Studi di Bologna**

Main subjects: cell biology, molecular biology, systems physiology, statistics, biochemistry, genetics. Experimental thesis carried out at Department of Pathology. Title (translated): "Role of p21 in deossiribose induces apoptosis in coloncarcinoma cells". Final grade: 107/110.

## Publications

### ***Stimulus information guides the emergence of behavior related signals in primary somatosensory cortex during learning.***

Panniello M, Gillon CJ, Maffulli R, Celotto M, Panzeri S, Richards BA, Kohl MM (2022)  
bioRxiv 2022.12.04.518156

### ***Imaging somatosensory cortex in rodents.***

Panniello M, Limal SA, Kohl MM  
in Holmes NP (Ed). Somatosensory Research Methods  
Springer Neuromethods (in press)

### ***CITE-On: a deep learning approach for online cell identification and trace extraction in functional two-photon calcium imaging.***

Sità L, Brondi M, Lagomarsino de Leon-Roig P, Curreli S, Panniello M, Vecchia D, Fellin T (2022)  
Nature Communications 13:1529

### ***A genetically encoded sensor for in vivo imaging of orexin neuropeptides.***

Duffet L, Kosar S, Panniello M, Viberti B, Bracey E, Zych A, Radoux-Mergault A, Zhou X, Deric J, Ravotto L, Tsai Y, Figueiredo M, Tyagarajan S, Weber B, Stoeber M, Gogolla N, Schmidt M, Adamantidis A, Fellin T, Burdakov D, Patriarchi T (2022)  
Nature Methods 19: 231-241

### ***Open-source, Python-based, hardware and software for controlling behavioural neuroscience experiments***

Akam T, Lustig A, Rowland J, Kapanaiah S, Esteve-Agraz J, Panniello M, Marquez C, Kohl M, Katzel D, Costa RM, Walton M (2022)  
eLife 11:e67846

***Complexity of frequency receptive fields predicts tonotopic variability in ferrets and mice.***

Gaucher Q\*, Panniello M\*, Ivanov A, Dahmen JC, King AJ, Walker KMM (2020)

eLife 9:e53462

\*These authors contributed equally to the work

***Quasi-simultaneous multiplane calcium imaging of neuronal circuits.***

Chong EZ, Panniello M, Barreiros I, Kohl MM, Booth MJ. (2019)

Biomedical Optics Express 1:267-282

***Local and global spatial organization of interaural level difference and frequency preferences in auditory cortex.***

Panniello M, King AJ, Dahmen JC, Walker KMM (2018)

Cerebral Cortex 28:350-369

***Extracellular matrix inhibits structural and functional plasticity of dendritic spines in the adult visual cortex.***

de Vivo L\*, Landi S\*, Panniello M\*, et al. (2013)

Nature Communications 4:1484

\*These authors contributed equally to the work

***Enhanced bioactivity of internally functionalized cationic dendrimers with PEG cores.***

Albertazzi L, et al. (2012)

Biomacromolecules 13:4089-97

## Invited Talks

- Autumn 2022 – planned, to be delivered – Fluorescence Neuroimaging and Photonics seminar series. University of Padova
- July 2019 – Research In Touch Conference (Nottingham, UK)
- April 2017 – University College London, Experimental Psychology Dept Seminar organized by Prof Dan Bendor (London, UK)
- February 2016 - ARO-Association for Research in Otolaryngology Meeting (San Diego, CA, USA)
- September 2015 - Auditory Cortex Meeting (Magdeburg, Germany)

## Awards and Funding

- Marie Sklodowska-Curie Individual Fellowship – awarded February 2021 by the European Commission. Grant agreement: 101024523 (EnlightedLoom). Letter of invitation for the Grant Agreement Preparation received on 8 February 2021, from the European Commission Research Executive Agency.
- EPA Cephalosporin Trust grant to develop “Big Data, Big Future”: a public engagement initiative within the Oxford Festival of Science and Ideas 2018 (in collaboration with British Science Association)
- #LabHero nominee 2018
- Goodger and Schorstein studentship to complete doctoral studies - awarded in March 2016 by the Medical Sciences Division of the University of Oxford (duration 6 months)
- 2016 Association for Research in Otolaryngology Travel Award
- Doctoral work included in the 2014 Society for Neuroscience Hot Topics Book
- Newton Abraham Studentship in Medical, Biological, and Chemical sciences. Awarded by the University of Oxford in March 2012 to pursue a DPhil in Physiology, Anatomy and Genetics - Lincoln College, Oxford University (starting date October 2012, until March 2016)
- Scuola Normale Superiore Studentship to pursue a PhD program in Molecular Biophysics

## Technical Skills

**Experimental skills:** two-photon acute and chronic in vivo imaging; head-fixed behavioural paradigms; stereotaxic brain surgeries in rodents and carnivores; in vivo LFP recordings; PCR; immunohistochemistry

**Computational skills:** Matlab, Python, LabView. Ability to work with Windows and MacOs. Image and Graphic Design Softwares: ImageJ, Inkscape, Adobe Illustrator, Figma. CAD drawing: Fusion360

**Language skills:** fluent English written and spoken; native Italian.

## Public engagement and service to the community

- **Early-career reviewer at eLife** (November 2022-present)
- **Program mentee and project lead Open Life Sciences 5 (OLS-5)** - (February 2022 –present)  
OLS is a 16-week program to upskill researchers in creating, leading and sustain an open science project. I created the Open Science, Open Future (OSOF) project: an educational resource including interactive workshops to promote the FAIR principles among young scientists (BSc, MSc, PhD students) as well as high-school pupils willing to enroll in STEM academic degrees. Visit the [GitHub page](#) for more info on OSOF.
- **eLife Open Science Champion** - (December 2021 - present) Part of the worldwide network built by eLife for early-career researchers who are willing to learn about, embrace, and promote Open Science principles. More info about the network [here](#).
- **European Researchers Night 2021** - (September 2022) Speaker for the Science Corner and leader of an interactive workshops about the the misteries of sensory perception (Una Matassa da Sbrogliare)
- **Project Lead Festival della Scienza di Genova** - (October 2020) Creator of and interviewer for the online event “Sailing Through the Brain Waves” (Navigando tra le onde cerebrali). Guest: Prof Marilù Gorno Tempini, UCSF
- **Co-founder and Scientific associate** - Biotop (June 2017 - present)  
As part of a collective of science and artists wanting to rethink the traditional way of doing science, my mission is to design and develop public engagement activities as well as citizen science projects.
- **Chair** - Oxfordshire Branch of the British Science Association (September 2017 - October 2018)  
While leading a group of about 10 volunteers, I designed PE events for small and large audiences from different backgrounds, chaired committee meetings, represented the branch at external meetings and liaised with other branches to develop common strategies for reciprocal development.
- **Public Relations Director** - It Gets Brighter (August 2016 - January 2018)  
IGB is a mental health charity founded and run by Oxford Uni students. I recruited bloggers and carried out informal interviews with Oxford academics in the scientific field.
- **Speaker** at science seminars for A-levels pupils (Oxford, London 2017 - 2019)
- **Co-Editor and writer** - Phenotype Magazine (Science&Society section) (2015 - 2017)
- **Volunteer** - Oxford University Museums (2017 - 2019)