PAOLO SPAIARDI CURRICULUM VITAE

PERSONAL INFORMATION

Name		Spaiardi Paolo

SCIENTIFIC EXPERIENCE

Dates		01/08/2021 → Today
Name and address of employer		**Prof. Gerardo Biella**, Lab of Biophysics and Physiology of Ion Channels Department of Biology and Biotechnology. University of Pavia - Via Forlanini, *6*,27100, Pavia.
Type of research		*Neurophysiology and biophysics of Ion Channels*
Position held		**RTD A – Research Fellow**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from *in situ* mouse neurons • Experimental data analysis • Teaching Activity

Dates		01/04/2021 → 31/07/2021
Name and address of employer		**Prof. Giulio Sancini**, School of Medicine and Surgery University of Milano-Bicocca - Via Cadore 48 – 20052 Monza (MI)
Type of research		*Neurophysiology of the cortex and of the limbic system*
Position held		**Research fellow**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from *in situ* mouse neurons • Experimental data analysis

Dates		01/08/2020 → 31/12/2020
Name and address of employer		**Prof. Gerardo Biella**, Lab of Biophysics of Ion Channels Department of Biology and Biotechnology. University of Pavia - Via Forlanini, *6*,27100, Pavia.
Type of research		*Neurophysiology and biophysics of Ion Channels*
Position held		**Research fellow**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from neurons • Experimental data analysis

Dates		01/03/2013 → 31/07/2020
Name and address of employer		**Prof. Sergio Masetto**, Lab of Neurophysiology and Biophysics of the Vestibular System Department of Brain and Behavioral Sciences - Unit of Neurophysiology University of Pavia - Via Forlanini, *6*,27100, Pavia.
Type of research		*Neurophysiology and biophysics of the inner ear*
Position held		**Research fellow**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from isolated and *in situ* vestibular hair cells • Cell membrane capacitance measurements from vestibular hair cells • Microdissection of the mouse inner ear • Experimental data analysis • Tutor activities

Dates		
Name and address of employer		**Prof. Walter Marcotti, Dr. Stuart L. Johnson** Lab of Neurophysiology and Biophysics of the Vestibular System Department of Biomedical Science, University of Sheffield, Sheffield, UK.
Type of research		*Neurophysiology and biophysics of the inner ear*
Position held		**Visiting Researcher**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from isolated and *in situ* vestibular hair cells • Cell membrane capacitance measurements from vestibular cells • Microdissection of the mouse inner ear • Experimental data analysis

Dates		01/12/2011 → 28/02/2013
Name and address of employer		**Prof. Marco Canossa**, Neuroscience and Brain Technologies - Istituto Italiano di Tecnologia (IIT), via Morego, 30, 16163 Genova.
Type of research		*Regulation of the adult neurogenesis by neurotrophins*
Occupation or position held		**Research Fellow**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from *in situ* newborn mouse hippocampal granule cells • Whole-cell patch-clamp recordings from cultured neural precursors • Stereotaxic intracranial injections of viral vectors into mouse brain. • Experimental data analysis.

Dates		01/10/2006 → 30/09/2011
Name and address of employer		**Prof. Mauro Toselli**, Lab of Electrophysiology and Biophysics of Neuronal Ionic Channels Department of general physiology - University of Pavia via Forlanini, 6, 27100 Pavia; Italy **Prof. Gerardo Biella**, Lab of Neurophysiology of the Lymbic system and of Neural Stem cells Department of general physiology - University of Pavia via Forlanini, 6, 27100 Pavia; Italy
Type of research		• *Neurophysiology of the mammalian perirhinal cortex* • *Neuromodulation of the neural activity in mouse hippocampus by oxytocin* • *Biophysical characterization of neural stem cells.* • *Role of the Rho GTPases in neuronal development of the hippocampal network.*
Occupation or position held		**PhD Student and Research Fellow**
Main activities and responsibilities		• Whole-cell patch-clamp recordings from *in situ* mouse neurons • Immunofluorescence staining on fixed mouse brain slices • Digital images acquisition by confocal microscope • Experimental data analysis • Tutor activities
Dates		01/01/04 → 26/07/05
Name and address of employer		**Prof. Dario Di Francesco**, Laboratory of Molecular Physiology and Neurobiology Department of Biosciences, University of Milano Via Celoria 26, 20133 Milano. **Prof. Antonio Malgaroli**, Laboratory of neurobiology of learning Vita-Salute San Raffaele University. via Olgettina 60, 20132 Milano; Italy.
Type of research		*Neurophysiological role of the Heat Shock Proteins*
Occupation or position held		**Internship for experimental thesis in Neuroscience**
Main activities and responsibilities		Immunofluorescence staining on fixed mouse brain slices Images acquisition by confocal microscope Western Blotting Experimental data analysis

EDUCATION AND TRAINING

Dates		01/10/2006 → 31/10/2009
Name and type of organisation providing education and training		University of Pavia - Department of general physiology via Forlanini, 6, 27100 Pavia; Italy
Title of qualification awarded		PhD in Physiology and Neuroscience
Level of Education		ISCED 6°

Dates		10/1997 → 7/2005
Name and type of organisation providing education and training		University of Milan Via Celoria 26, 20133 Milano; Italy Vita-Salute San Raffaele University via Olgettina 60, 20132 Milano; Italy.
Title of qualification awarded		Master's degree in Biological Sciences. FINAL DEGREE MARK: 106/110
Level of Education		ISCED 5°

Dates		January - July 2001
Name and type of organisation providing education and training		Freien Universität Berlin Kaiserswerther Str. 16-18, 14195 Berlin, Germany
Title of qualification awarded		Erasmus scholarship - master's degree in Biological Sciences

Dates		09/1992 - 06/1997
Name and type of organisation providing education and training		Liceo Scientifico di San Donato milanese –Melegnano, Italy
Title of qualification awarded		High School Graduation
Level of Education		ISCED 3°

PERSONAL SKILLS AND COMPETENCES

Mother Tongue		Italian
Other languages		English (reading skills: good; writing skills: good, verbal skills: good)
Social skills		Good ability of teaching and training developed following students attending the labs
Organisational skills		Good ability to organize independently the work Good predisposition to work in team
Technical skills and competences .		Good knowledge of Microsoft OS Windows XP, Windows Vista, Windows 10 Good knowledge of Mac OS X 10.5.8 Good knowledge of the Microsoft Office Package (Excel, Word and Powerpoint) Good knowledge of Corel Draw Good Knowledge of pClamp 10.0 Good Knowledge of Microcal Origin
Driving Licence		A and B

SCIENTIFIC PRODUCTION - PUBLICATIONS

NMDA receptors elicit flux-independent intracellular Ca^{2+} signals via metabotropic glutamate receptors and flux-dependent nitric oxide release in human brain microvascular endothelial cells.
Negri S, Faris P, Maniezzi C, Pellavio G, ***Spaiardi P****, Botta L, Laforenza U, Biella G, Moccia DF.*
Cell Calcium. 2021 Aug 17;99:102454. doi: 10.1016/j.ceca.2021.102454. Epub ahead of print. PMID: 34454368.

Membrane Resonance in Pyramidal and GABAergic Neurons of the Mouse Perirhinal Cortex.
Binini N, Talpo F, ***Spaiardi P****, Maniezzi C, Pedrazzoli M, Raffin F, Mattiello N, Castagno AN, Masetto S, Yanagawa Y, Dickson CT, Ramat S, Toselli M, Biella GR.*
Front Cell Neurosci. 2021 Jul 22;15:703407. doi: 10.3389/fncel.2021.703407. PMID: 34366789; PMCID: PMC8339929.

Exocytosis in mouse vestibular Type II hair cells shows a high-order Ca^{2+} dependence that is independent of synaptotagmin-4.
Spaiardi P, Marcotti W, Masetto S, Johnson SL.
Physiol Rep. 2020;8(14):e14509. doi:10.14814/phy2.14509

Stem Cell-Derived Human Striatal Progenitors Innervate Striatal Targets and Alleviate Sensorimotor Deficit in a Rat Model of Huntington Disease
Besusso D, Schellino R, Boido M, Belloli S, Parolisi R, Conforti P, Faedo A, Cernigoj M, Campus I, Laporta A, Dickinson Bocchi V, Murtaj V, Parmar M, **Spaiardi P**, Talpo F, Maniezzi C, Toselli MG, Biella G, Moresco RM, Vercelli A, Buffo A, Cattaneo E
Stem Cell Reports. 2020 May 12;14(5):876-891. doi: 10.1016/j.stemcr.2020.03.018. Epub 2020 Apr 16.

Oxytocin Increases Phasic and Tonic GABAergic Transmission in CA1 Region of Mouse Hippocampus.
Maniezzi C, Talpo F, **Spaiardi P**, Toselli M, Biella G.
Front Cell Neurosci. 2019 May 7;13:178. doi: 10.3389/fncel.2019.00178. eCollection 2019.

K^+accumulation and clearance in the calyx synaptic cleft of Type I mouse vestibular hair cells
Spaiardi P, Tavazzani E, Manca M, Russo G, Prigioni I, Biella G, Giunta R, Johnson SL, Marcotti W, Masetto S
Neuroscience. 2019 doi: 10.1016/j.neuroscience.2019.11.028

An allosteric gating model recapitulates the biophysical properties of I_{KL} expressed in mouse vestibular type I hair cells.
Spaiardi P, Tavazzani E, Manca M, Milesi V, Russo G, Prigioni I, Marcotti W, Magistretti J, Masetto S.
J Physiol. 2017 Nov 1;595(21):6735-6750. doi: 10.1113/JP274202. Epub 2017 Sep 24

Distinct roles of Eps8 in the maturation of cochlear and vestibular hair cells.
Tavazzani E, **Spaiardi P**, Zampini V, Contini D, Manca M, Russo G, Prigioni I, Marcotti W, Masetto S.
Neuroscience. 2016 Jul 22;328:80-91. doi: 10.1016/j.neuroscience.2016.04.038. Epub 2016 Apr 27

Elementary properties of Ca^{2+} channels and their influence on multivesicular release and phase-locking at auditory hair cell ribbon synapses.
Magistretti J, **Spaiardi P**, Johnson SL, Masetto S.
Front Cell Neurosci. 2015 Apr 8;9:123. doi: 10.3389/fncel.2015.00123. eCollection 2015

Glutamic acid decarboxylase 67 expression by a distinct population of mouse vestibular supporting cells.
Tavazzani E, Tritto S, **Spaiardi P**, Botta L, Manca M, Prigioni I, Masetto S, Russo G.
Front Cell Neurosci. 2014 Dec 17;8:428. doi: 10.3389/fncel.2014.00428. eCollection 2014

Rac1 and Rac3 GTPases control synergistically the development of cortical and hippocampal GABAergic interneurons.
Vaghi V, Pennucci R, Talpo F, Corbetta S, Montinaro V, Barone C, Croci L, **Spaiardi P**, Consalez GG, Biella G, de Curtis I.
Cereb Cortex. 2014 Dec.

Developmentally coordinated extrinsic signals drive human pluripotent stem cell differentiation toward authentic DARPP-32+ medium-sized spiny neurons.
Carri AD, Onorati M, Lelos MJ, Castiglioni V, Faedo A, Menon R, Camnasio S, Vuono R, **Spaiardi P**, Talpo F, Toselli M, Martino G, Barker RA, Dunnett SB, Biella G, Cattaneo E.
Development. 2013 Jan 15;140(2):301-12

Analysis of the noise associated to the muscarinic modulation of the mouse perirhinal cortex.
Spaiardi, P.; Talpo, F.; Toselli, M.; Biella, G.; Marinoni, A.; Savazzi, P.; Favalli, L.;
in *Proc.* IEEE Isabel, 2010, pp. 1-5

Dual modulation of inward rectifier potassium currents in olfactory neuronal cells by promiscuous G protein coupling of the oxytocin receptor.
Gravati M, Busnelli M, Bulgheroni E, Reversi A, **Spaiardi P**, Parenti M, Toselli M, Chini B.
J Neurochem. 2010 Sep 1;114(5):1424-35. Epub 2010 Jun 14

Functional interactions within the parahippocampal region revealed by voltage-sensitive dye imaging in the isolated guinea pig brain.
Biella G, **Spaiardi P**, Toselli M, de Curtis M, Gnatkovsky V.
J Neurophysiol. 2010 Feb;103(2):725-32. Epub 2009 Nov 25.

A fast transient outward current in layer II/III neurons of rat perirhinal cortex.
Biella GR, **Spaiardi P**, Jimenez-Moreno R, Magistretti J, Taglietti V, Toselli M.
Pflugers Arch. 2007 Dec;455(3):515-25. Epub 2007 Jul 19

SCIENTIFIC PRODUCTION – ABSTRACTS

Variation of intercellular K^+ concentration at the mouse vestibular Type I hair cell-calyx synapse can contribute to afferent signaling
R. Giunta, **P. Spaiardi**, E. Tavazzani, M. Manca, G. Russo, I. Prigioni, G. Biella, S.L. Johnson, W. Marcotti and S. Masetto
56th Workshop on Inner Ear Biology (IEB 2019), Padova, Italy, September 2019.

The properties of synaptic transmission in adult mammalian vestibular hair cells differs between Type I and Type II cells
P. Spaiardi, W. Marcotti, S. Masetto and S. Johnson
ARO MidWinter Meeting 2019, Baltimore, Maryland (USA) February 2019

Supra-linear Ca^{2+} dependence of the neurotransmitter release at mammalian vestibular ribbon synapses
P. Spaiardi, W. Marcotti , R. Giunta , S. Masetto & SL. Johnson
Calcium Day 2018 - Novara, Italy, July 2018

I_{KL} properties of vestibular Type I hair cells are affected by the nerve calyx ending
P. Spaiardi, I. Prigioni , E. Tavazzani, M. Manca, G. Russo, S. Masetto
53rd Workshop on Inner Ear Biology (IEB), Montpellier, France. September 2016.

Oxytocin modulates phasic and tonic $GABA_A$ receptor-mediated inhibition of firing in CA1 pyramidal cells.
C. Maniezzi, F. Talpo, **P. Spaiardi**, M. Petrella, N. Tamamaki , G. Biella I & M. Toselli.
10th Forum of European Neuroscience (FENS) Copenhagen, Denmark. July, 2016.

Eps8 regulates K^+ channels expression in mouse cochlear but not vestibular hair cells.
P. Spaiardi, E. Tavazzani, V. Zampini, M. Manca, G. Russo, S. Masetto and I. Prigioni
52nd Workshop on Inner Ear Biology (IEB), Rome, Italy. September 2015

The biophysical properties I_{KL} in mammalian vestibular Type I hair cells and how they are affected by the nerve calyx
E. Tavazzani, **P. Spaiardi**, M. Manca, J. Magistretti, G. Russo, I. Prigioni and S. Masetto.
52nd Workshop on Inner Ear Biology (IEB), Rome, Italy. September 2015

Authentic biophysical properties of I_{KL} in mammalian vestibular Type I hair cells revealed after calyx removal.
P. Spaiardi, E. Tavazzani, M. Manca, J. Magistretti, G. Russo, I. Prigioni and S. Masetto.
51st Workshop on Inner Ear Biology (IEB), Sheffield, UK. September 2014

Eps8 regulates K^+ currents expression in mouse cochlear inner but not outer hair cells nor in vestibular Type I and Type II hair cells
E. Tavazzani, G. Russo, **P. Spaiardi**, M. Manca, I. Prigioni and S. Masetto.
51st Workshop on Inner Ear Biology (IEB), Sheffield, UK. September 2014

Eps8 is necessary for the normal expression of cochlear, but not vestibular hair cell K^+ channels.
Prigioni I, Tavazzani E, Russo G, Magistretti J, Contini D, **Spaiardi P**, Soda T, Masetto S.
50th Workshop on Inner Ear Biology (IEB), Alcalá de Henares, Spain. September 2013

Effects of the calyx on the apparent properties of vestibular type I hair cells K^+ currents.
Tavazzani E, Russo G, Magistretti J, **Spaiardi P**, Soda T Prigioni I, Masetto S.
50th Workshop on Inner Ear Biology (IEB), Alcalá de Henares, Spain. September 2013

Resonance, oscillation and muscarinic modulation in the mouse Perirhinal cortex.
Binini N., Talpo F., **Spaiardi P**. Maniezzi C., Toselli M & Biella G.
15th Italian Society of Neuroscience Meeting (SINS). Roma. October 2013

Electrophysiological characterization of human pluripotent stem cell differentiated towards authentic fully functional medium-sized spiny neurons.
Cesana E., **Spaiardi P.**, Talpo F., Delli Carri A., Onorati M., Toselli M., Cattaneo E., Biella G
63rd meeting of the Italian Society of Physiology (SIF), Verona, Italy. September 2012

Electrophysiological analysis of the hippocampal circuit in the Rac1/Rac3 double knockout mouse.
F. Talpo, **P. Spaiardi**, M. Toselli, I. De Curtis, G. Biella
62nd meeting of the Italian Society of Physiology (SIF), Sorrento, Italy. September 2011

Analysis of the hyperexcitability of CA3 pyramidal neurons in a mouse-model presenting the inactivation of Rac1-Rac3 GTPases.
Talpo F., **Spaiardi P**, Toselli M., De Curtis I., Biella G.
International School of Biophysics "A. Borsellino"EMBO/FEBS Lecture Course on channels and transporters, Erice, Italy. May 2011

Extrinsic signals drive human embryonic stem cells differentiation towards fully functional striatal DARPP32$^+$ neurons.
A. Delli Carri, M. Onorati, V. Castiglioni, A. Faedo, **P. Spaiardi** ., G. Biella and E. Cattaneo
Neurostemcell, III annual Meeting Bellagio, Italy. April 2011

Muscarinic modulation of the perirhinal cortex: effects on GABAergic interneurons and pyramidal cells.
Talpo F., **Spaiardi P**, Marinoni A., Savazzi P., Toselli M., Favalli L., Biella G.
61st meeting of the Italian Society of Physiology (SIF), Varese, Italy. September 2010.

Muscarinic modulation of the mouse perirhinal cortex and associated noise.
Talpo F., **Spaiardi P**, Marinoni A., Savazzi P., Favalli L., Yanagawa Y., Toselli M., Biella G.
Annual Meeting of young researchers in Physiology. Pisa, Italy. June 2010.

Muscarinic effects on the GABAergic and pyramidal neurons of the mouse perirhinal cortex.
Biella G., Yanagawa Y., Talpo F., Toselli M. & **Spaiardi P**.
7th Forum of European Neuroscience (FENS). Amsterdam, Holland. July 2010.

Muscarinic modulation of the GABAergic interneurons in the mouse perirhinal cortex.
Spaiardi P, Toselli M, Yanagawa Y, Biella G.
13th Italian Society of Neuroscience Meeting (SINS). Milano, Italy. October 2009.

Muscarinic modulation of balance between inhibition and excitation in perirhinal cortex: the GAD67-GFP mouse model
Spaiardi P, Toselli M, Tanagawa Y, Biella G.
60th meeting of the Italian Society of Physiology (SIF), Siena. Italy. September 2009.

Cholinergic modulation of the neuronal firing pattern in the perirhinal cortex.
Spaiardi P, Toselli M. and Biella G.
6th Forum of European Neuroscience (FENS). Geneve, Switzerland July 2008.

Role of perirhinal cortex in the integration and in the modulation of the neocortical and hippocampal signals: electrophysiological characterization of the pyramidal neurons in layers II/V of the area 35 and 36 of the perirhinal cortex.
Spaiardi P, Toselli M. and Biella G.
1st Meeting of Italian doctorate students in neuroscience. Turin, Italy. March 2007

Electrophysiological characterization of the pyramidal neurons in layer II/V of the area 35 perirhinal cortex.
Spaiardi P, Toselli M. and Biella G.

The node and the network: the fundamental contribution of Camillo Golgi to modern neuroscience symposium. Pavia, Italy. October 2006.

Calcium and potassium currents in layer II-III/V pyramidal neurons in area 35 of the perirhinal rat.
Biella G.R., Pintus A., **Spaiardi P.**, Gravati M., Taglietti V. & Toselli M.
5th Forum of European Neuroscience. Wien, Austria. July, 2006

CONFERENCE SPEAKER

68th SIF - National Congress Italian Physiological Society - Pavia 6-8 September 2017

RESEARCH GRANTS

2014 – International Junior Research Grant (IJRG) awarded by the Physiological Society.
The grant was aimed to study the functional role of synaptotagmins at ribbon synapses of mammalian vestibular hair cells. This project has been developed in the laboratory Sensory Neuroscience headed by Prof. Walter Marcotti, at the department of Biomedical Science - University of Sheffield – UK.

TEACHING ACTIVITIES

December 2009, Seminar "Biophysics of cellular membrane". Department of Physiology, University of Pavia
Jannuary 2010. Seminar "Biophysics of cellular membrane". Department of Physiology, University of Pavia
Jannuary 2012. Seminar "Basic features of the neurotransmission". University of Bologna
May 2019, Seminar "Bioelectricity". University of Pavia
March 2021, Seminar "Cell Membrane" (Biology, Anatomy and Physiology Course) - Faculty of Drug Sciences, University of Pavia
March 2021, Seminar "Cell Organelles" (Biology, Anatomy and Physiology Course) - Faculty of Drug Sciences, University of Pavia

TUTOR ACTIVITIES

2013-2014. Tutor for Human Physiology, Department of Drug Sciences, University of Pavia.
2014-2015. Tutor for Human Physiology, Department of Drug Sciences, University of Pavia
2016-2017. Tutor for Human Physiology, Department of Drug Sciences, University of Pavia
2017-2018. Tutor for Human Physiology, Department of Drug Sciences, University of Pavia
2018-2019. Tutor for Human Physiology, Department of Drug Sciences, University of Pavia

CO-SUPERVISOR OF THESIS

Preparato in situ di apparato cocleare di topo.
(Experimental Thesis, First level Degree in Biotechnology, 2017/2018. University of Pavia)

Contributo delle correnti KCa nella determinazione del firing dei neuroni regular spiking nella corteccia peririnale di ratto.
(Experimental Thesis, First level Degree in Biological Sciences, 2006/2007. University of Pavia)

Analisi elettrofisiologica dei neuroni piramidali della regione CA3 dell'ippocampo nei topi doppi knock-out per i geni Rac1e Rac3".
(Experimental Thesis, First level Degree in Biological Sciences, 2008/2009.)

L'ossitocina modula la frequenza e l'ampiezza degli IPSCs spontanei nelle cellule piramidali dell'ippocampo di topo.
(Experimental Thesis, First level Degree in Biological Sciences, 2009/2010. University of Pavia)

Effetto della modulazione muscarinica sugli interneuroni GABAergici della corteccia peririnale di topo.
(Experimental Thesis, master's degree in Neurobiology, 2008/2009. University of Pavia)

Autorizzo il trattamento dei miei dati personali ai sensi del Dlgs 196 del 30 giugno 2003;

DATA

22-09-21

FIRMA