

# PAOLA SGADÒ

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## EDUCATION/QUALIFICATION

- **Apr 2022 – present** Member of the PhD Committee in “Cognitive and Brain Sciences” – Center for Mind/Brain Sciences (CIMEC) – University of Trento, Italy.
- **Jan 2022 – present** Temporary Assistant Professor (Researcher type B) in Physiology (BIO/09) – Center for Mind/Brain Science (CIMEC) – University of Trento, Italy.
- **Jan 2017 – present** Principal Investigator, Molecular and Cellular Cognition group – Center for Mind/Brain Science (CIMEC) – University of Trento, Italy.
- **Jan 2017 – Jan 2022** Temporary Assistant Professor (Researcher type A) in Physiology (BIO/09) – Center for Mind/Brain Science (CIMEC) – University of Trento, Italy.
- **Jan 2017 – 2019** Member of the PhD Committee in “Cognitive and Brain Sciences” – Center for Mind/Brain Sciences (CIMEC) – University of Trento, Italy.
- **Jul '15 – Dec '16** Senior PostDoc at the Animal Cognition and Neuroscience Laboratory, Center for Mind/Brain Sciences (CIMEC) – University of Trento, Italy.
- **Jul '10 – Dec '14** Marie Curie COFUND “People” Incoming PostDoc 2009 Research Fellow. EnCORT Project [149.000 €]. Centre for Integrative Biology (CIBIO), University of Trento, Italy.
- **Aug '10 – Jun '11** Maternity leave
- **Jun '09 – Jun '10** Senior PostDoc in Laboratory of Molecular Neuropathology, Centre for Integrative Biology (CIBIO), University of Trento, Italy.
- **Jun '07 – May '09** PostDoc in Neurogenetics of Epilepsy at the Neurogenetics lab, Child Neurology Unit, “A. Meyer” Children’s Hospital, Florence, Italy.
- **May '05 – Apr '07** PostDoc at the Neuroscience Department, Pharmacology section, University of Pisa, Italy.
- **25th Sept 2006** PhD awarded “magna cum laude” - University of Heidelberg, Germany. Title: “Development and maintenance of mesencephalic dopaminergic neurons: role of the *Engrailed* and *Pbx1* transcription factors”. Supervisors: Prof. K. Beyreuther and Prof. H. Monyer.
- **Feb '00 – Dec '04** PhD student under the supervision of Dr. Horst Simon, at the Interdisciplinary Centre for Neuroscience, Department of Neuroanatomy III, University of Heidelberg, Germany.
- **Apr '99 – Feb '00** Research assistant in Developmental Biology at the Cellular and Developmental Biology Lab, Biochemistry and Physiology Department, University of Pisa, Italy. Supervisor: Dr. F. Cremisi.
- **26th April 1999** Master in Biological Science – Graduation with honour “110/110 cum laude”, at the University of Pisa, Italy. Thesis: “PC3 over-expression, driven *in vivo* by retroviral vectors, affects terminal differentiation of rat cortical precursors”. Supervisor Dr. F. Cremisi., Scuola Normale Superiore, Pisa.
- **Apr '96 – Apr '99** Undergraduate research training at the Cellular and Developmental Biology Lab, Biochemistry and Physiology Department, University of Pisa, Italy.
- **Nov '92 – Apr '99** Master Degree Course in Biological Science, University of Pisa, Italy.

## POSITIONS AND HONORS

- Apr '17** Invited Speaker – “Wiring the Brain” Cold Spring Harbor Laboratory meeting.
- Jul '10** Marie Curie COFUND “People” Incoming PostDoc Research Fellowship.
- Oct '09** Invited Speaker – XIII Italian Neuroscience Society National Congress, Milan, Italy.
- Feb '09** Invited Speaker – LIMPE Seminars: “Old and new dopamine agonists in Parkinson's disease: a

reappraisal”.

**Jan '09** Invited Speaker – Italian League for Epilepsy Meeting, Genetic Board, Rome, Italy.

**Sep '07** Invited Speaker – LIMPE Seminars: “Experimental models of Parkinson’s disease”

**25th Sept 2006** Dr. Rer. Nat. “magna cum laude” – University of Heidelberg, Germany.

**Nov '06** Invited Speaker – Best Oral presentation – XXXIII LIMPE Annual Meeting, Stresa, Italy

**Sept '03** Invited Speaker – X Italian Neuroscience Society National Congress, Pisa, Italy.

## **COMMITTEE AND PROFESSIONAL MEMBERSHIPS**

### **Societies memberships**

Member of the Italian Neuroscience Society (SINS)

Member of the Federation of the European Neuroscience Societies (FENS)

Member of the European Molecular and Cellular Cognition Society (EMCCS)

### **Reviewing committees**

#### Peer-review Journals

Scientific Reports

eNeuro

Behavioural and Brain Research

Social Neuroscience

Molecular Neurobiology

Neurotoxicology and Teratology

Frontiers in Behavioural Neuroscience

Frontiers in Cellular Neuroscience

Frontiers in Physiology

Frontiers in Psychology

Neuroscience

Epilepsy Research

Research in Developmental Disabilities

International Journal of Molecular Sciences

Biochemical Science

#### Expert Panel Review Member

Expert Scientific Review Wellcome Trust

Neurological Foundation of New Zealand

## **TEACHING EXPERIENCE**

**2017 – present** Cellular and Molecular Neuroscience – Master in Cognitive Neuroscience  
University of Trento, Italy

**2017 – 2020** Neurobiology of Brain Disorders – Master in Cognitive Neuroscience  
University of Trento, Italy

**2016 – 2017** Current Issue in Neuroscience – Master in Cognitive Neuroscience  
University of Trento, Italy

**Jan '16 – Mar '16** Lecturer, Secondary School Teacher Ministerial Habilitation Course  
University of Trento, Italy.

**Feb '15 – Jun '15** Lecturer, Secondary School Teacher Ministerial Habilitation Course  
University of Trento, Italy

**Nov '14 – Feb '15** Assistant Lecturer, Physiology – Bachelor of Science in Biomolecular Sciences and  
Technology – University of Trento, Italy

**Apr '14 – Jul '14** Lecturer, Secondary School Teacher Ministerial Habilitation Course  
University of Trento, Trento, Italy

**Nov '13 – Feb '14** Assistant Lecturer, Physiology – Bachelor of Science in Biomolecular Sciences and  
Technology – University of Trento, Italy

**January 2013** Assistant Lecturer, Teachers Training Course, Natural Science Museum, Trento.

**Nov '11 – Feb '12** Assistant Lecturer, Physiology – Bachelor of Science in Biomolecular Sciences and  
Technology – University of Trento, Italy

**July 2006** Lecturer, Postgraduate School “Diagnosis and Treatment for Movement Disorders” –  
Università Cattolica del Sacro Cuore, Facoltà di Scienze della Formazione, Milano, Italy

## **LIST OF PEER-REVIEWED PUBLICATIONS [#corresponding authorship]**

(Scopus h-index: 14)

1. Matsushima, T., Miura, M., Patzke, N., Toji, N., Wada, K., Ogura, Y., Homma, K.J. **Sgadò, P.**, Vallortigara, G. Fetal blockade of nicotinic acetylcholine transmission causes autism-like impairment of biological motion preference in the neonatal chick. *Cereb cortex commun*, tgac041.
2. Versace, E., **Sgadò, P.**, George, J., Loveland, J.L., Ward, J., Thorpe, P., Jensen, L.J., Spencer, K.A., Paracchini, S., Vallortigara, G. Light-induced asymmetries in embryonic retinal gene expression are mediated by the vascular system and extracellular matrix. *Sci Rep*, 2022, 12(1), 12086.
3. Adiletta, A., Pross, A., Taricco, N. & **Sgadò, P#**. Embryonic Valproate Exposure Alters Mesencephalic Dopaminergic Neurons Distribution and Septal Dopaminergic Gene Expression in Domestic Chicks. *Frontiers Integr Neurosci*, 2022, 16, 804881.
4. Adiletta, A., Pedrana, S., Rosa-Salva, O., **Sgadò, P#**. Spontaneous Visual Preference for Face-Like Stimuli Is Impaired in Newly-Hatched Domestic Chicks Exposed to Valproic Acid During Embryogenesis. *Front Behav Neurosci*, 2021, 15, 733140.
5. Messina, A., Boiti, A., Sovrano, V.A., **Sgadò, P#**. Micromolar valproic acid doses preserve survival and induce molecular alterations in neurodevelopmental genes in two strains of zebrafish larvae. *Biomolecules*, 2020, 10(10), pp. 1–12, 1364.
6. Provenzano, G., Gilardoni, A., Maggia, M., Pernigo, M., **Sgadò, P**, Casarosa, S., Bozzi, Y. Altered expression of gabaergic markers in the forebrain of young and adult engrailed-2 knockout mice. *Genes*, 2020, 11(4), 384.
7. Lorenzi, E, Pross, A, Rosa Salva, O, Versace, E, **Sgadò, P#**, & Vallortigara, G#. Embryonic Exposure to Valproic Acid Affects Social Predispositions for Dynamic Cues of Animate Motion in Newly-Hatched Chicks. *Frontiers in Physiology*, 2019, 10, 501.
8. **Sgadò P#**, Rosa-Salva O, Versace E, Vallortigara G. Embryonic Exposure to Valproic Acid Impairs Social Predispositions in Newly-Hatched Chicks. *Scientific Reports* 2018, 8, 5919.
9. Versace E, Eriksson A, Rocchi F, Castellan I, **Sgadò P**, Haase A. Physiological and behavioral responses in *Drosophila melanogaster* to odorants present at different plant maturation stages. *Physiology & behaviour* 2016; 163, 322-331.
10. Zunino G, Messina A, **Sgadò P**, Baj G, Casarosa S, Bozzi Y. Brain-derived neurotrophic factor signaling is altered in the forebrain of Engrailed-2 knockout mice. *Neuroscience* 2016; 324, 252.
11. Provenzano G\*, **Sgadò P\***, Genovesi S, Zunino G, Casarosa S, Bozzi Y: Hippocampal dysregulation of FMRP/mGluR5 signaling in engrailed-2 knockout mice: a model of autism spectrum disorders. *NeuroReport* 2015; 26:1101. [\*equally contributing authors]
12. Provenzano G, Pangrazzi L, Poli A, **Sgadò P**, Berardi N, Bozzi Y. Reduced phosphorylation of synapsin I in the hippocampus of Engrailed-2 knockout mice, a model for autism spectrum disorders. *Neuroscience* 2015; 286:122.
13. Provenzano G, Pangrazzi L, Poli A, Pernigo M, **Sgadò P**, Genovesi S, Zunino G, Berardi N, Casarosa S, Bozzi Y. Hippocampal dysregulation of neurofibromin-dependent pathways is associated with impaired spatial learning in Engrailed 2 knockout mice. *J Neuroscience* 2014; 34(40):13281.
14. Provenzano G, Clementi E, Genovesi S, Scali M, Tripathi PP, **Sgadò P** and Bozzi Y. GH dysfunction in Engrailed-2 knockout mice, a model for autism spectrum disorders. *Front Pediatr* 2014; 2:92.
15. Allegra, M, Genovesi, S, Maggia, M, Cenni, MC, Zunino, G, **Sgadò, P**, Caleo, M and Bozzi, Y. Altered GABAergic markers, increased binocularity and reduced plasticity in the visual cortex of Engrailed-2 knockout mice. *Front Cell Neurosci* 2014; 8:163.
16. **Sgadò P#**, Provenzano G\*, Dassi E, Adami V, Zunino G, Genovesi S, Casarosa S, Bozzi Y: Transcriptome profiling in engrailed-2 mutant mice reveals common molecular pathways associated with autism spectrum disorders. *Mol Autism* 2013; 4:51. [\*equally contributing authors]
17. **Sgadò, P**, Genovesi, S, Kalinovskiy, A, Zunino, G, Macchi, F, Allegra, M, Murenu, E, Provenzano, G, Tripathi, PP, Casarosa, S, Joyner AL, Bozzi Y. Loss of GABAergic neurons in the hippocampus and cerebral cortex of Engrailed-2 null mutant mice: implications for autism spectrum disorders. *Exp Neurol* 2013; 247:496.
18. Provenzano G, Zunino G, Genovesi S, **Sgadò P**, Bozzi Y (2012). Mutant mouse models of autism spectrum disorders. *Dis Markers*. 2012; 33(5):225. [review]
19. **Sgadò P#**, Ferretti E, Grbec D, Bozzi Y, Simon HH. The atypical homeoprotein Pbx1a participates in the axonal pathfinding of mesencephalic dopaminergic neurons. *Neural Dev*. 2012; 7:24.
20. **Sgadò P**, Dunleavy M, Genovesi S, Provenzano G, Bozzi Y. The role of GABAergic system in neurodevelopmental disorders: a focus on autism and epilepsy. *Int J Physiol Pathophysiol Pharmacol*. 2011; 3(3):223.
21. **Sgadò P#**, Viaggi C, Pinna A, Marrone C, Vaglini F, Pontis S, Mercuri NB, Morelli M, Corsini GU. Behavioral, neurochemical, and electrophysiological changes in an early spontaneous mouse model of nigrostriatal degeneration. *Neurotox Res* 2011; 20(2):170.

22. Alavian KN, **Sgadò P**, Alberi L, Subramaniam S, Simon HH. Elevated P75NTR expression causes death of engrailed-deficient midbrain dopaminergic neurons by Erk1/2 suppression. *Neural Dev* 2009; 4:11.
23. Tripathi PP\*, **Sgadò P\***, Scali M, Viaggi C, Casarosa S, Simon HH, Vaglini F, Corsini GU, Bozzi Y. Increased susceptibility to kainic acid-induced seizures in Engrailed-2 knockout mice. *Neuroscience* 2009; 159(2):842. [\*equally contributing authors]
24. **Sgadò P#**, Viaggi C, Fantacci C, Corsini GU. Characterization of the Engrailed mutant mice as experimental models for Parkinson's disease. *Parkinsonism Relat Disord* 2008; 14 S2:S103.
25. Belcari N, Del Guerra A, Bartoli A, Bianchi D, Lazzarotti M, Sensi L, Menichetti L, Lecchi M, Erba PA, Mariani G, Corsini GU, and **Sgadò P**. Evaluation of the performance of the YAP-(S)PET scanner and its application in neuroscience. *Nucl Instrum Methods Phys Res A*. 2007; 571:18.
26. Viaggi C, Vaglini F, Pardini C, **Sgadò P**, Caramelli A, Corsini GU. CYP 2E1mutant mice are resistant to DDC-induced enhancement of MPTP toxicity. *J Neural Transm Suppl* 2007; 72:159.
27. Ceravolo R, **Sgadò P**, Frosini D, Corsini GU. Assessing neuroprotection in Parkinson's disease: from the animal models to molecular neuroimaging in vivo. *J Neural Transm Suppl*. 2006; 71:133.
28. **Sgadò P**, Albéri L, Gherbassi D, Galasso SL, Ramakers GM, Alavian KN, SmidMP, Dyck RH, Simon HH. Slow progressive degeneration of nigral dopaminergic neurons in postnatal Engrailed mutant mice. *Proc Natl Acad Sci U S A* 2006; 103(41):15242.
29. Albéri L, **Sgadò P**, Simon HH. Engrailed genes are cell-autonomously required to prevent apoptosis in mesencephalic dopaminergic neurons. *Development* 2004; 131(13):3229.
30. Simon HH, Bhatt L, Gherbassi D, Sgadò P, Alberi L. Midbrain dopaminergic neurons: determination of their developmental fate by transcription factors. *Ann NY Acad Sci* 2003; 991:36.
31. Malatesta P\*, **Sgadò P\***, Caneparo L, Barsacchi G, Cremisi F. In vivo PC3 overexpression by retroviral vector affects cell differentiation of rat cortical precursors. *Brain Res Dev Brain Res* 2001; 128(2):181. [\*equally contributing authors]

#### Preprint

32. Messina, A., Sovrano, A.V, Baratti, G., Musa, A., Adiletta, A., **Sgadò P#**, . Valproic acid exposure affects social visual lateralization and asymmetric gene expression in zebrafish larvae. *Biorxiv*, <https://doi.org/10.1101/2022.08.22.504839>.

#### Book Chapters

1. Genovesi, S, Provenzano, G, Dunleavy, M, **Sgadò, P**, & Bozzi, Y. GABAergic Dysfunction in Autism and Epilepsy. In Dr. Valsamma Eapen (Ed.): *Autism - A Neurodevelopmental Journey from Genes to Behaviour*, InTech 2011, pages 25-48.
2. Parrini E, **Sgadò P**, Guerrini R. Single gene mutations causing epileptogenic malformations of the cerebral cortex. In: Philip A. Schwartzkroin, Editor(s)-in-Chief, *Encyclopedia of Basic Epilepsy Research*, Academic Press, Oxford, 2009, pages 1521-1530.
3. Parrini E, Mei D, Conti V, **Sgadò P**, Marini C, Guerrini R. Cortical dysplasias of genetic origin. In *Genetics of Epilepsy and Genetic Epilepsies*, G. Avanzini and J. Noebels (eds.) © 2009 John Libbey Eurotext, pages 1-20.

#### Book translation

1. *Principi di Neurobiologia* (2017). Parma V, Sgadò P.

#### Abstracts

1. Neurobiology of social behaviors – September 2023 – Erice, Italy. “Embryonic exposure to valproic acid alters visual preference for face-like stimuli and mesencephalic dopaminergic distribution and signaling in domestic chicks.”
2. CogEvo 2023 – July 2023 – Rovereto, Italy. “Embryonic exposure to valproic acid alters visual preference for Face-Like stimuli and mesencephalic dopaminergic distribution and signaling in domestic chicks.”
3. Neuroscience Meeting 2022 – November 2022 – San Diego, US. “Fetal blockade of nicotinic acetylcholine transmission causes autism-like impairments of social attachment formation in domestic chicks; recovery by postnatal bumetanide”.
4. 13<sup>th</sup> FENS Virtual Forum of Neuroscience – July 2022 – Paris, France. “Embryonic exposure to valproic acid impairs visual preferences for Face-Like stimuli and alters dopaminergic distribution and signaling in domestic chicks”.
5. Gordon Research Conference 2022 – Fragile X and Autism-Related Disorders Novel Technologies to Advance Discovery of Disease Mechanisms and Therapeutics for Fragile X and Autism – May 2022 – Lucca,

- Italy. "Embryonic exposure to valproic acid impairs visual preferences for Face-Like stimuli and alters dopaminergic distribution and signaling in domestic chicks".
6. 12<sup>th</sup> FENS Virtual Forum of Neuroscience – July 2020. E-poster title: "Altered social predispositions in chicks exposed to valproate during embryonic development: neurobiological correlates".
  7. 11<sup>th</sup> FENS Forum of Neuroscience – July 2018 – Berlin, Germany. Poster. "Altered social predispositions in chicks exposed to valproate during embryonic development".
  8. 8<sup>th</sup> EMCCS-FENS meeting – July 2018 – Berlin, Germany. Poster. "Altered social predispositions in chicks exposed to valproate during embryonic development".
  9. "Wiring the Brain" Cold Spring Harbor Laboratory meeting – April 2017 – Cold Spring Harbor, USA. Invited speaker. "Altered social predispositions in chicks exposed to valproate during embryonic development".
  10. International Meeting for Autism Research – IMFAR 2014 – May 2014, Atlanta, USA. "Transcriptome Profiling in Engrailed2 Knockout Mice Reveals Common Molecular Pathways Associated with Autism Spectrum Disorders".
  11. Neuroscience 2013 – SfN Annual Meeting 2013 – November 2013, San Diego, USA. "Transcriptome profiling in Engrailed2 knockout mice reveals convergent molecular pathology associated with ASD."
  12. "Wiring the Brain" Cold Spring Harbor Laboratory meeting – July 2013, Cold Spring Harbor, USA. "Transcriptome profiling in Engrailed2 knockout mice reveals convergent molecular pathology associated with ASD"
  13. Neuroscience 2012 – SfN Annual Meeting 2012 – October 2012, New Orleans, USA. "GABAergic system dysfunction and gene expression profiling alterations in Engrailed2 knockout mice, a model for autism spectrum disorders."
  14. Jacques Monod Conference – "Mechanisms of Intellectual Disability: from genes to treatment", October 2012, Roscoff, France. "GABAergic system dysfunction and gene expression profiling alterations in Engrailed2 knockout mice, a model for autism spectrum disorders"
  15. XIII National Congress of the Italian Society for Neuroscience – October 2009, Milano, Italy. Invited Speaker "Common developmental bases of epilepsy and autism: altered GABAergic innervation in mice lacking the homeobox gene Engrailed 2".
  16. LIMPE Seminars 2009 – February 2009, Pisa, Italy. Invited Speaker "New experimental models of Parkinson's disease".
  17. LICE 2009 – January 2009, Rome, Italy Invited Speaker "Delezione 6q ed eterotopia periventricolare. Individuazione di geni candidati"
  18. LIMPE Seminars 2007 – September 2007, Alghero, Italy. Invited Speaker "Characterization of the Engrailed mutant mice as experimental models for Parkinson's disease".
  19. LIMPE Annual Meeting 2006 - November 2006, Stresa, Italy. Short communication talk: "Perdita Progressiva Dei Neuroni Dopaminergici Della Substantia Nigra In Topi Mutanti Engrailed". Awarded as best short communication.
  20. FENS Meeting 2006 – July 2006, Vienna, Austria. "Characterization of engrailed mutant mice as experimental model for Parkinson's Disease: neurochemical and neuropathological features"
  21. ICPD 2005 – June 2005, Berlin, Germany. "Progressive postnatal degeneration of nigral dopaminergic neurons in engrailed mutant mice".
  22. FENS Meeting 2004 – July 2004, Lisbon, Portugal. "Progressive postnatal degeneration of nigral dopaminergic neurons in engrailed mutant mice".
  23. The Cell Biology of the Neuron - 33<sup>th</sup> Neuroscience Meeting, Nov. 2003 – New Orleans, USA. "Progressive loss of nigral dopaminergic neurons in En1+/-,En2-/- adult mice: a mouse model for Parkinson's Disease".
  24. VII National Congress of the Italian Society for Neuroscience – September 2003, Pisa, Italy. Short communication talk. "Progressive postnatal loss of nigral dopaminergic neurons in mutant mice heterozygous null for Engrailed-1 and homozygous null for Engrailed-2".
  25. Gordon Research Conference 2002 – Neural Development – Aug. 2002, Newport, USA. "Role of Pbx1 in the development of the midbrain dopaminergic neurons".
  26. FENS Meeting 2002 – July 2002, Paris, France. "Role of Pbx1 in the development of the midbrain dopaminergic neurons".
  27. 14<sup>th</sup> IIGB Meeting – Generating Cell Diversity in the Nervous System – Oct. 2001, Capri, Italy. "Role of Pbx-1 in the development of midbrain dopaminergic neurons".

#### Courses

1. Neuroscience School of Advanced Studies "Neural Circuits of Social Cognition" – June 2019 – San Servolo, Venice.

2. DOPAMINET 2012 – Summer school on dopaminergic neurons – Trieste, Italy
3. DOPAMINET 2009 – Summer school on dopaminergic neurons – Trieste, Italy
4. EPICURE 2008 – Training course “Study of the phenotype in experimental models of epilepsy” – Malta.
5. Applied Biosystems – “Applicazioni di Spettrometria di Massa in ambito chimico-clinico” – Italy.
6. CELBIO – RNAi and microRNA: nuove frontiere nella ricerca biomedica – Florence, Italy