

CURRICULUM VITAE

Name **Claudia Lodovichi, M.D., Ph.D.**

Academic position Senior Researcher
Neuroscience Institute, CNR, Department of Biomedical Science
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Education

1995 **M.D.** University of Pisa Medical School, Sant' Anna School of Advanced Studies
Pisa, Italy, with honors.

1999 **Ph.D.** in Neurobiology, Sant' Anna School of Advanced Studies Pisa, Italy, with
honors.

Positions and employments

1999-2003 Postdoctoral Fellow (Howard Hughes Medical Institute, HHMI, fellowship,
Research Assistant), Prof. Lawrence C. Katz's laboratory, HHMI and Department
of Neurobiology, Duke University Medical Center, Durham, NC, USA.

2003-2005 Postdoctoral Fellow, Prof. Joseph A. Gogos's laboratory, Columbia University,
College of Physicians and Surgeons, Department of Physiology and Cellular
Biophysics, Center for Neurobiology and Behaviour, New York, NY, USA.

2006- Principal Investigator, Giovanni Armenise-Harvard Foundation Career
Development Awardee, Venetian Institute of Molecular Medicine (VIMM),
Padua, Italy.

- 2009 - Tenured Scientist, Neuroscience Institute, CNR, Padua, Italy
- 2018 - Scientist affiliated to the Padua Neuroscience Center (PNC@Padua).
- 2019 - Senior Researcher, CNR, Neuroscience Institute, CNR, Padua, Italy

Awards

- 2006 Giovanni Armenise-Harvard Foundation Career Development Award.
Project title: "Circuit formation and function in the olfactory system"
- 2012 NARSAD Young investigator Award

Memberships

- 2000 - Member of the Society for Neuroscience
- 2009 - Member of the Italian Society of Neuroscience
- 2016 - Member of the Cajal Club Foundation

Ad hoc reviewer

- 2009- **Research articles:** Frontiers of Cellular Neuroscience; J Neuroscience; Plos One.
- 2009- **Grant applications:** Agence de la Reserche, France.

Academic activities

- 2003-2005 Tutoring and training of undergraduate and graduate students at Columbia University, College of Physicians and Surgeons, Department of Physiology and Cellular Biophysics, Center for Neurobiology and Behavior, New York, NY, USA.
- 2006- Tutoring and training for undergraduate and graduate students at the School of Biological Sciences and Neurobiology at the University of Padua, Italy.
- 2007- 2018 Member of the Committee for the PhD School in Neurobiology and of the PhD school in Biomedical Sciences, University of Padua, Italy
- 2019 - Member of the Committee for the PhD School at the Padua Neuroscience Center

Teaching activity

- 2006-2012 Sensory systems in the Neurobiology course at the undergraduate School of Molecular Biology, University of Padua.
- 2006-2012 Neurobiology course at the graduate school in Neurobiology and at the graduate school in in Biomedical Science, University of Padua
- 2013- Course "Neurophysiology of sensory systems" at the International Master in Neuroscience at the University of Trieste
- 2016-2017 Neurophysiology, Medical School, Padua
- 2019 - "Biology, Physiology and Anatomy" , Department of Engineering, University of Padua

Invited talks

2009

January Institute of Pharmacology, CNR Milan. title " odorant receptor and circuit formation in the olfactory system".

February Department of Neuroscience, University of Parma.

November Université Pierre et Marie Curie, Neuroscience Department, Paris. Title *"The odorant receptor at the axon terminal of sensory neurons"*.

November Institute Pasteur, Paris.

2010

April 29 National Enterprise for nanoScience and nanoTechnology (NEST), Pisa. title "Odorant receptor and circuit formation in the olfactory system".

June 5-8 Armenise–Harvard Foundation, 13th Annual Symposium "Neuronal function and neurologic disorders", Frascati, Rome.

July 8 Department of Neuroscience and Molecular Pharmacology, Glasgow University, UK. title "Odorant receptor and circuit formation in the olfactory system"

July 20th Istituto Italiano di Tecnologia (IIT), Genova. title *"Odorant receptor and circuit formation in the olfactory bulb"*.

November 24 Center for Brain Science, Harvard University, Cambridge, MA. title "Odorant receptor and circuit formation in the olfactory bulb"

December 16 SSSUP, S. Anna, Pisa Italy. title "Circuit formation and function in the olfactory system"

2011

January 11 Interdisciplinary Center for Neurosciences, Heidelberg, Germany. Title "Neuronal circuitry in the olfactory bulb: a role for the odorant receptor"

September 7-10 ECRO Congress, Manchester, UK, "Odorant receptor and circuit formation in the olfactory bulb" (invited speaker).

2012

October DZNE, Bonn, Germany.

2013

December Depart. Scienze della vita, Università di Trieste

2014

April 7 Depart. of Neurobiology, Sissa, Trieste Title " Circuit formation and function in the olfactory system.

2015

February 20 Depart. of Cognitive Neuroscience, Sissa, Trieste Title "circuit formation and function in the olfactory bulb"

October 15 Depart. of Cellular and Molecular Neuroscience, University of Wisconsin, Milwaukee USA Title. "Circuit formation and function in the olfactory bulb"

Depart. of Psychiatric, Madison (WI) USA

Depart. of Neurobiology and behaviour, Stony Brook University, Stony Brook, NY, USA.

November 19 Institute of Neurology, UCL, London, UK. Title "Circuit formation and function in the olfactory bulb"

2016

November 24 VIB-KU Leuven Center for Brain & Disease Research, Leuven, Belgium Title " Circuit formation and function in the olfactory bulb"

December 7 Institute of Pharmacology and Toxicology, Zurich, Switzerland. Title" Neuronal wiring and information processing in the olfactory system"

2017

October 20 Department of anatomy, physiology and genetics, Oxford, UK Title "Circuit formation and function in the olfactory system"

November 17 GW Institute for Neuroscience, Washington DC, USA. Title " the olfactory system: an interesting model to study development of neuronal circuits and information processing".

Meetings and courses

1995

July 2-8 Course: "Developmental and functional aspects of human brain", Cividale del Friuli, Udine, Italy.

1997

Sep Course: "Programmed cell death", Cold Spring Harbor Laboratory, NY, USA.

Oct.5 -9 Meeting: "Formation and plasticity of neuronal circuits", Monte Verità, Ascona, Switzerland.

Oct.25-30 The Society for Neuroscience annual meeting, New Orleans, LA, USA, poster: "Effects of TrkA activation in visual cortical plasticity require afferent spontaneous electrical activity".

1998

Nov.7-12 The Society for Neuroscience annual meeting, Los Angeles, CA, USA; poster : "Differential effects of neurotrophins on ocular dominance plasticity of the rat visual cortex".

Nov.15-17 Telethon, Scientific Convention, Rome, Italy, poster: "Responses to axotomy in retinal ganglion cells of wild type and bcl-2 transgenic mice".

2001

Nov.10-15 The Society for Neuroscience annual meeting, San Diego, CA, USA, slide session: "A precise intrabulbar inhibitory connections links isofunctional glomeruli in the olfactory bulb".

2002

Nov. 2-7 The Society for Neuroscience annual meeting, Orlando, FL, USA, slide session: "Specific topographic connection between mirror-symmetric maps in the olfactory bulb".

2006

June12-16 10th Annual Armenise-Harvard Symposium, Catania, Italy.

Oct. 22-28 Two photon practical EMBO course, Munich, Germany.

2007

June 8-11 Newport, USA, 11th Annual Symposium, Armenise-Harvard Foundation. Poster : "Spatio-temporal dynamics of cAMP in olfactory sensory neurons".

2008

June 20-23 12 Annual Meeting Armenise-Harvard Foundation, Stresa, Italy. Poster "cAMP dynamics in olfactory sensory neurons".

July 12-16 Geneve, Switzerland, FENS Forum Poster "Spatio-temporal dynamics of cAMP in olfactory sensory neurons".

Sep. 17-20 Leuven, Belgium, 10th Symposium of the European Ca²⁺ Society. Poster “Real time cAMP and Ca²⁺ dynamics in olfactory system”.

Nov. 15-19 The Society for Neuroscience annual meeting. Washington DC, USA, Poster “Odorant receptor and second messenger cAMP in olfactory sensory neurons: spatial distribution and temporal dynamics”

2009

Oct. 17 -21 The Society for Neuroscience annual meeting. Chicago, IL, USA, poster, “Regulation of cGMP in olfactory sensory neurons”.

2010

June 5-8 13th Armenise Harvard Foundation Annual Symposium, Frascati, Italy, invited talk “Odorant receptor and circuit formation in the olfactory system”

Nov 13-17 The Society for Neuroscience annual meeting, San Diego, CA, USA, poster, “Role of electrical activity in circuit formation in the olfactory system”.

2011

Sep 7-10 ECRO Congress, Manchester, UK, “Odorant receptor and circuit formation in the olfactory bulb” (invited speaker).

2012

Sept.30-Oct 3 Champalimaud Neuroscience Symposium. Lisbon, Portugal.

2014

Nov. 15-19 Society for Neuroscience meeting, Washington DC, USA see abstracts below).

2015

Oct.17-21 Society for Neuroscience, Chicago, USA (see abstracts below).

2016

July 2-6 FENS, Copenhagen (see abstracts below).

2017

November 11-15 Society for Neuroscience meeting, Washington DC, USA, poster (on Nov 15) Altered migration of inhibitory interneurons in a mouse model of intellectual disability. (poster)

December 4-6 6th European Synapse meeting (ESM) Milan, Italy. Title “Altered migration of inhibitory interneurons in a mouse model of intellectual disability”.

Abstracts

1. Bonfanti L., Rabacchi S.A., **Lodovichi C.**, Liu X.H., Maffei L. (1994). Early response of microglia to optic nerve lesion during degeneration of neonatal retinal ganglion cells. 24th The Society for Neuroscience annual meeting, Miami Beach, Florida, November 13 -18.
2. Bonfanti L., Rabacchi S.A., **Lodovichi C.**, Liu X.H., Maffei L. (1994). Brain macrophages respond to retinal ganglion cell axotomy prior to the rise in number of apoptotic cells in neonatal rat. European School Of Haematology, Kinsale, Ireland.

3. Caleo M., Pizzorusso T., **Lodovichi C.**, Maffei L. (1996). Expression of the immediate early gene *zif 268* in monocular deprived rats: effects of NGF The Society for Neuroscience annual meeting , Washington DC, USA, November 16 –21.
4. Caleo M., **Lodovichi C.**, Pizzorusso T., Maffei L. (1997). Effects of TrkA activation in visual cortical plasticity require afferent spontaneous electrical activity. The Society for Neuroscience annual meeting, New Orleans, USA, October 25 -30.
5. Maffei L., Cenni M.C., Chierzi S., Di Cristo G., **Lodovichi C.**, Ratto G.M., Strettoi E. (1997). Strategies to improve regeneration in the injured optic nerve of mammals. Scientific Convention, Telethon, Bologna, Italy, November 16 -18.
6. Berardi N., Pizzorusso T., **Lodovichi C.**, Maffei L. (1998). Differential effects of neurotrophins on ocular dominance plasticity of the rat visual cortex. The 6th Neuropharmacology Conference, Cortical Plasticity, Berlin, Germany, June 24-26.
7. Berardi N., Pizzorusso T., **Lodovichi C.**, Maffei L. (1998). Differential effects of neurotrophins on ocular dominance plasticity of the rat visual cortex. The Society for Neuroscience annual meeting, Los Angeles, USA, November 7 -12.
8. Maffei L., Cenni MC., Chierzi S., Di Cristo G., **Lodovichi C.**, Ratto GM., Strettoi E. (1998). Responses to axotomy in retinal ganglion cells of wild type and bcl-2 transgenic mice. Scientific Convention, Telethon, Rome, Italy, November 15 -17.
9. **Lodovichi C.**, Katz L.C. (2001). "A precise intrabulbar inhibitory connections links isofunctional glomeruli in the olfactory bulb". The Society for Neuroscience annual meeting, San Diego, USA, November 10 -15.
10. **Lodovichi C.**, Belluscio L., Katz L.C. (2002) Specific topographic connection between mirror-symmetric maps in the olfactory bulb. The Society for Neuroscience annual meeting, Orlando, USA, November 2 -7.
11. Maritan M. **Lodovichi C.** (2007) Spatio-temporal dynamics of cAMP in olfactory sensory neurons. 11th Annual Symposium, Armenise Harvard Foundation, Newport, USA, June 8th-11th.
12. Maritan M, **Lodovichi C** (2008) "cAMP dynamics in olfactory sensory neurons" 12th Annual Meeting, Armenise Harvard Foundation, Stresa, June 20 23.
13. Maritan M, Zacco M, **Lodovichi C** (2008) "Spatio-temporal dynamics of cAMP in olfactory sensory neurons". FENS Forum, Geneve, July 12-16.
14. Maritan M, Monaco G, Zacco M, **Lodovichi C** (2008) "Real time cAMP and Ca²⁺ dynamics in olfactory sensory neurons". European Calcium Symposium, Leuven, September 20-23.
15. Maritan M, Pozzan T, Zacco M, **Lodovichi C** (2008) "Odorant receptor and second messenger cAMP in olfactory sensory neurons: spatial distribution and temporal dynamics" The Society for Neuroscience annual meeting, Washington DC, USA, November 15-19.
16. Pietrobon M, Maritan M, Pozzan T, **Lodovichi C**, (2009) " Regulation of cGMP in olfactory sensory neurons". The Society for Neuroscience annual meeting, Chicago, USA, October 17-21.
17. Lorenzon P, Redolfi N, **Lodovichi C.** (2010) "Role of activity in circuit formation in the olfactory system". Armenise Harvard Foundation 13th Ann Symposium, Frascati June 5th-8th (poster).
18. Zamparo I, **Lodovichi C.** "Axon termini dynamics upon activation of the odorant receptor". Armenise Harvard Foundation 13thAnn Symposium, Frascati June 5 - 8 (poster).
19. **Lodovichi C.** (2010) "Odorant receptor and circuit formation in the olfactory system". Armenise Harvard Foundation 13thAnn Symposium, Frascati June 5-8 (invited talk).
20. Lorenzon, P. Redolfi N., **Lodovichi C.** (2010) "Role of electrical activity in circuit formation

- in the olfactory system”. The Society for Neuroscience annual meeting, San Diego, USA, November 13-17.
21. **Lodovichi C** (2011), “Odorant receptor and circuit formation in the olfactory bulb”. ECRO congress, Manchester, UK, September 7-10
 22. Lorenzon P, Redolfi N, Podolsky M, Murthy, VN, **Lodovichi C** (2012) “The role of spontaneous activity in sculpting circuit formation and function in the olfactory bulb”. Champalimaund Neuroscience Symposium, Lisbon, Sep 30 –Oct 3.
 23. Franchi SA, Zamparo I, **Lodovichi C** (2012) the odorant receptor at the axon termini: mechanism of activation and function”. Champalimaund Neuroscience Symposium, Lisbon, Sep 30 –Oct 3.
 24. Redolfi, N, Savoia E, Zamparo I, **Lodovichi C** (2014) “Role of oligophrenin 1 in circuit formation in the olfactory bulb of a mouse model of X-linked intellectual disability” FENS Milano, 5-9 July.
 25. FranchiSA, Zamparo I, **Lodovichi C** (2014) Mechanism of activation and function of the odorant receptor expressed at the axon terminus growth cone of the olfactory sensory neurons. FENS, Milan, 5-9 July.
 26. Redolfi, N, Savoia E, Zamparo I, **Lodovichi C** (2014) “Role of oligophrenin 1 in circuit formation in the olfactory bulb of a mouse model of X-linked intellectual disability” The Society for Neuroscience annual meeting, Washington DC, USA, November 15-19.
 27. Redolfi N, Galla L, Maset A, Savoia E, Zamparol, **Lodovichi C**. (2015) Pharmacological rescue of altered neuronal circuits in a mouse model of X-linked intellectual disability. Society for Neuroscience annual meeting, Chicago, USA, October 17-21.
 28. Maset A, Galla L, **Lodovichi C** (2015) OPHN1 regulates the migration of newly generated cells in the olfactory system. Society for Neuroscience annual meeting, Chicago, USA, October 17-21.
 29. Redolfi N, Galla L, Maset A, Murr L, Savoia E, Zamparo I, Gritti A, Billuart P, Passafaro M, **Lodovichi C** (2016) Mutation of OPHN1 impairs adult born granule cells development and network activity in the olfactory bulb. FENS, Copenhagen, July2-6.
 30. Galla, L, Maset A, Lodovichi C (2016) Impact of OPHN1 on migrating neuroblasts. FENS, Copenhagen, July2-6.
 31. Maset A, Galla L , **Lodovichi C (2017)** Altered migration of inhibitory interneurons in a mouse model of intellectual disability. (poster) SfN meeting, Nov 11-15, Washington DC, USA
 32. Maset A, Galla L, Lodovichi, C (2017) Title “Altered migration of inhibitory interneurons in a mouse model of intellectual disability”. Selected as short oral communication, presented by my PhD student Andrea Maset. December 4-6 6th European Synapse meeting (ESM) Milan, Italy

Publications

1. Caleo M, **Lodovichi C**, Pizzorusso T, Maffei L (1999). Expression of the transcription factor zif 268 in the visual cortex of monocularly deprived rats: effects of nerve growth factor. *Neuroscience*, 91 (3):1017-1026. IF 3,4
2. Caleo M*, **Lodovichi C*** Maffei L (1999). Effects of nerve growth factor on visual cortical plasticity require afferent electrical activity. *Eur. J. Neurosci.*11:2979-2984(*joint first authors).if 3,7
3. Berardi N, **Lodovichi C**, Caleo M, Pizzorusso T, Maffei L (1999). Role of neurotrophins in neural plasticity: what we learn from the visual cortex. *Restorative Neurology and Neuroscience*. 15:125-136.
4. **Lodovichi C**, Berardi N, Pizzorusso T, Maffei L (2000).Effects of neurotrophins on cortical plasticity: same or different? *J. Neurosci*. 20(6): 2155- 2165. IF 7,3
5. **Lodovichi C**, Di Cristo G, Cenni MC, Maffei L. (2001). Bcl-2 overexpression per se does not promote regeneration of neonatal crushed optic fibers. *Eur. J. Neurosci*. 13: 833-838.IF 3,7
6. Belluscio L, **Lodovichi C**, Feinstein P, Mombaerts P, Katz LC (2002) Odorant receptors instruct functional circuitry in the mouse olfactory bulb. *Nature* 419 (6904):296-300. IF41,6 (2010: 36,1)
7. **Lodovichi C**, Belluscio L, Katz LC (2003) Functional topography of connections linking mirror symmetric maps in the mouse olfactory bulb. *Neuron* 38: 265-276. IF 14,3
8. Cao L, Dhillia A, Mukai J, Blazeski R, **Lodovichi C**, Mason CA and Gogos JA. (2007) Genetic modulation of BDNF signaling affects the outcome of axonal competition in vivo. *Current Biology*, 17:911-921. IF 10
9. Maritan M, Monaco G, Zamparo I, Zaccolo M, Pozzan T, **Lodovichi C** (2009)) Odorant receptor at the growth cone are coupled to localized cAMP and Ca²⁺ increases. *Proc Natl Acad Sci, USA*. USA. March 3, 106 (9): 3537-3542. IF 9,5
10. Pietrobon M. Zamparo I Maritan M, Franchi SA, Pozzan T, **Lodovichi C** (2011) Interplay among cGMP, cAMP and Ca²⁺ in living olfactory sensory neurons in vitro and in vivo. *J Neurosci*. 31:8395-8405. IF 7.3
11. Bau' L, Arduini M, Zamparo I, **Lodovichi C***, Mancin F* (2012) A cell-penetrating ratiometric nanoprobe for intracellular chloride. *Org. Lett.*, 14, 2984-2987. * corresponding authors. IF 6.5
12. **Lodovichi C*** and Belluscio L* (2012) Odorant receptors in the formation of the olfactory bulb circuitry. *Invited Review in Physiology* 27:200-212. * corresponding authors. IF 10
13. Grison A, Zucchelli S, Urzi A, Zamparo I, Lazarevic D, Pascarella G, Roncaglia P, Giorgetti

- A, Vlachouli C, Simone R, Carloni P, Forrest ARR, Ferrer I, **Lodovichi C**, Plessy C, Carninci P and Gustincich S (2014) Mesencephalic dopaminergic neurons express a repertory of olfactory receptors and respond to odorant-like molecules. (BMC Genomics, 15:729). IF 4 (3.98)
14. Lorenzon P, Redolfi N, Podolsky MJ, Zamparo I, Franchi SA, Pietra, G. Boccaccio A, Menini, A, Murthy VN, **Lodovichi C** (2015) Circuit formation and function in the olfactory bulb of mice with reduced spontaneous afferent activity. J Neurosci 35(1): 146). IF (5,98) 6
 15. Redolfi N, **Lodovichi C**. (2015) Role of the odorant receptor in neuronal connectivity in the olfactory bulb. (SMW, invited review, Dec 28;145:w14228. Doi:10.4414/smw.2015.14228. eCollection 2015.). PMID: 26710176 IF 1.6
 16. Redolfi N, Galla L, Maset, A, Murru L, Savoia, E, Zamparo I, Gritti A, Billuart P, Passafaro M, **Lodovichi C** (2016) Oligophrenin-1 regulates number, morphology and synaptic properties of adult-born inhibitory interneurons in the olfactory bulb (Hum Mol Genet. 2016 Dec 1;25(23):5198-5211. doi: 10.1093/hmg/ddw340. PMID: 27742778) IF 5,3
 17. Zamparo I, Francia S, Franchi SA, Redolfi N, Costanzi E, Kersten A, Fukutani Y, Battistutta R, Polverino De Laureto, Munck S De Strooper B, Matsunami H **Lodovichi C** (2019) “ Axonal odorant receptors mediate axon targeting”. (In press in Cell Reports).
 18. Maset A, Galla L, Francia S, Cozzolino O, Ratto GM, **Lodovichi C** (2019) Altered migration of forebrain GABAergic inhibitory interneurons in a mouse model of intellectual disability. (in revision)
 19. Trovato F, Parra R, Pracucci E, Landi S, Cozzolino O, Nardi G, Cruciani F, Mosti M, Cwetsch A, Cancedda L, Sala C, Verpelli C, Maset A, **Lodovichi C**, Ratto GM (2019) A Cre-amplifier to generate and detect genetic mosaics in vivo (in revision).