

Curriculum Vitae

Tania Rinaldi Barkat

Basel University
Department of Biomedicine
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Research Experience

Basel University Basel, Switzerland
Department of Biomedicine from January 2015
Tenure-track Assistant Professor

Copenhagen University Copenhagen, Denmark
Institute of Neurosciences and Pharmacology March 2013- Dec 2014
Assistant Professor
Studying the development and function of auditory circuits

- Leading an independent research group
- Applying *in vivo* electrophysiology, voltage sensitive dye imaging, optogenetics, molecular and anatomical techniques in anesthetized and awake mice
- Supervising two postdocs since February 2014

Harvard University Cambridge, MA, USA
Takao Hensch Laboratory, Center for Brain Science 2008-2013
Postdoctoral research fellow
Studied functional circuits involved in critical periods in the developing auditory system

- Applied voltage sensitive dye imaging, electrophysiology, molecular and anatomical techniques in mouse acute thalamocortical slices in genetic and environment-based mouse models
- Applied *in vivo* multi-electrode recording in anesthetized mouse auditory system
- Taught and supervised thesis works of undergraduate students

Harvard University Cambridge, MA, USA
Junior Fellow at the **Harvard Society of Fellows** 2008-2011

Swiss Federal Institute of technology (EPFL) Lausanne, Switzerland
Laboratory of Neural Microcircuitry, Brain Mind Institute 2002-2007
PhD student, supervised by Prof. Henry Markram
Studied altered neocortical microcircuitry in the VPA rat model of autism

- Applied *in vitro* electrophysiology, *in vivo* intrinsic imaging, morphological reconstruction, western blotting, rat treatment, and computer programming for electrophysiological use
- Wrote a patent application for a possible treatment for autism spectrum disorders
- Taught undergraduate and graduate students

University of Lausanne Lausanne, Switzerland
Institute of Physiology 2002 (6 months)
Research assistant, supervised by Prof. A. Villa
Practiced extracellular recordings in behaving rats

CERN (ISOLDE, EP Division) Geneva, Switzerland
Research student 2001 (2 months)
Studied negative surface ionization source for the production of radioactive isotope

EPFL Lausanne, Switzerland
Laboratory of photonic, Physical Chemistry Department 2001 (6 months)
Master student
Studied femtosecond spectroscopy in condensed matter

Education

Swiss Federal Institute of Technology (EPFL) Lausanne, Switzerland
PhD degree in the doctoral program *Neuroscience and the Developmental Neurobiology* 2003-2006

RIKEN Brain Science Institute Tokyo, Japan
Summer school *Neurobiology of mental Disorders and the Mind* (received a grant) June 2005

Hebrew University of Jerusalem Jerusalem, Israel
Jerusalem Spring School of Dendrites (received a grant) April 2005

Swiss Federal Institute of Technology (EPFL) Lausanne, Switzerland
Master of Science in chemical engineering, specialized in physical chemistry 1996-2001

McGill University Montreal, Canada
Exchange student (received a grant) 1998-1999

Collège de la Royale Abbaye St-Maurice, Switzerland
High-school 1991-1996

Awards and Fellowships

ERC Starting Grant 2014
For up-and-coming research leaders to establish a proper research team and to start conducting independent research in Europe
Subject: Studying the developing auditory cortex to dissect neural circuit functions

Lundbeck Foundation Fellowship 2013
For researcher to develop their own research group, €1.34 mio for 5 years
Subject: Development and function of auditory circuits

Swiss National Science Foundation 2011
Fellowship for advanced researchers, CHF90'000 for 18 months
Subject: Control of plasticity and neuronal connectivity in the developing mouse auditory system

Harvard University 2010
William F. Milton Fund, \$40'000 for 24 months
Subject: Dissecting the rules governing neuronal connectivity during a critical period in the auditory system

Harvard Society of Fellows 2008
Fellowship for Junior Fellow, \$210'000 for 36 months
Subject: Active modification of altered connectivity in the mouse auditory cortex

Swiss National Science Foundation Fellowship for prospective researchers, CHF57'400 for 12 months Subject: Active modification of altered connectivity in the mouse auditory cortex	2008
EPFL Dimitri Chorafas Award for outstanding PhD thesis	2007
EPFL Alliance Award for the patent <i>Methods for Treating and/or Preventing Pervasive Developmental Disorders in a Subject</i> .	2007
EPFL Award for outstanding progress in PhD studies	2004
McGill University Award for outstanding results in Quantum Physics	1998
EPFL Louis Pelet Award for best grades at the propedeutic examinations I & II	1998

Teaching experience

Copenhagen University , Department of Neuroscience and Pharmacology Teaching physiology to undergraduate students	Copenhagen, Denmark 2013-2014
Harvard University , Center for Brain Science Taught and supervised thesis works of undergraduate students	Cambridge, MA, USA 2008-2012
Swiss Federal Institute of technology (EPFL) , Brain Mind Institute Taught electrophysiology to undergraduate and graduate students Taught a class on Animal Models of Autism to undergraduate students	Lausanne, Switzerland 2002-2007

Publications

* authors contributed equally to the work

- Barkat TR**, Zhang E, De Wolf S, Hensch TK (in preparation). *Controlling a critical period for plasticity in the mouse auditory system*.
- Favre MR; **Barkat TR**; LaMendola D; Khazen G; Markarm H; Markram K (2013). *General developmental health in the VPA-rat model of autism*. Front Behav Neurosci, 7 (88): 1-7.
- Barkat TR**, Polley DB, Hensch TK (2011). *A critical period for auditory thalamocortical connectivity*. Nat Neurosci, 14(9):1189-1194.
- Hackett TA*, **Barkat TR***, O'Brien BJ, Hensch TK, Polley DB (2011). *Linking topography to tonotopy in the mouse auditory thalamocortical circuit*. J. Neuroscience, 31(8):2983-2995.
- Silva G, Le Bé J, Riachi I, **Rinaldi T**, Markram K, Markram H (2009). *Enhanced long term microcircuit plasticity in the valproic acid animal model of autism*. Front. Syn. Neurosci, 1:1-9.
- Rinaldi T**, Perrodin C, Markram H (2008). *Hyper-connectivity and hyper-plasticity in the medial prefrontal cortex in the valproic acid animal model of autism*. Front Neural Circuits, 2(4):1-7.

Rinaldi T, Silberberg G, Markram H (2008). *Hyperconnectivity of local neocortical microcircuitry induced by prenatal exposure to valproic acid*. *Cerebral Cortex*, 18:763-770.

Markram K, **Rinaldi T**, La Mendola D, Sandi C, Markram H (2008). *Abnormal fear conditioning and amygdala processing caused by prenatal exposure to valproic acid*. *Neuropsychopharmacology*, 33:901-912.

Markram H, **Rinaldi T**, Markram K (2007). *The Intense World Syndrome – an alternative hypothesis for autism*. *Frontiers in Neuroscience*, 1:77-96.

Rinaldi T, Kulangara K, Antonello K, Markram H (2007). *Elevated NMDA receptor levels and enhanced postsynaptic long-term potentiation induced by prenatal exposure to valproic acid*. *Proc. Natl. Acad. Sci.*, 104:13501-13506.

Köster U, Bergmann UC, Carminati D, Catherall J, Cederkäll J, Correia JG, Crepieux B, Dietrich M, Elder K, Fedoseyev VN, Fraile L, Franchoo S, Fynbo H, Georg U, Giles T, Joinet A, Jonsson OC, Kirchner R, Lau Ch, Lettry J, Maier HJ, Mishin VI, Oinonen M, Peräjärvi K, Ravn HL, **Rinaldi T**, Santana-Leitner M, Wahl U, Weissman L (2003). *The ISOLDE Collaboration. Oxide fiber at ISOLDE*. *Nuclear Instruments and Methods in Physics Research B*, 204:303-313.

Patent

Methods for Treating and/or Preventing Pervasive Developmental Disorders in a Subject. EPFL, Switzerland (2007)

Invited talks

ENCODS 2016	Helsingør, Denmark June 2016
Bench to Bedside Symposium	Basel, Switzerland February 2016
DBM 15 th Anniversary Symposium	Basel, Switzerland August 2015
Joern Hounsgaard Symposium	Copenhagen, Denmark June 2015
FENS conference: "Controlling neurons, circuits and behaviour"	Copenhagen, Denmark April 2014
INF Annual meeting, Copenhagen University	Helsingør, Denmark Jan 2014
Synapse and Circuits Seminar, EPFL	Lausanne, Switzerland Dec 2013
Danish Brain Research Laboratories Meeting	Copenhagen, Denmark June 2013
Department of Neuroscience and Pharmacology, University of Copenhagen	Copenhagen, Denmark June 2012
Symposium on Neurocircuits and Behavior, FMI	Basel, Switzerland Dec 2011
Faculty of Medicine, University of Zürich	Zürich, Switzerland Nov 2011
FM Kirby Neurobiology Center, Harvard Medical School	Boston, MA, USA Oct 2011
CMU, University of Geneva	Geneva, Switzerland Oct 2011

EMBO conference “The assembly and function of neuronal circuits”	Ascona, Switzerland Sept 2011
DBCM, University of Lausanne	Lausanne, Switzerland Sept 2011
French Society for Neuroscience	Marseille, France May 2011
Society for Neuroscience Annual Meeting	San Diego, CA, USA Nov 2010
Gordon Research Conference “Neural circuits and Plasticity”	Newport, RI, USA June 2010
Department of Molecular and Cellular Biology, Harvard Medical School	Boston, MA, USA April 2007
Neurobiology Lectures, IZN, University of Heidelberg	Heidelberg, Germany Feb 2007

Languages

French and Danish	bilingual
English	fluent
German	working knowledge

References

Takao Hensch	Professor at the MCB Department, Harvard University, Cambridge, MA, USA hensch@mcb.harvard.edu
Henry Markram	Professor at the Brain Mind Institute, EPFL, Lausanne, Switzerland henry.markram@epfl.ch
Dan Polley	Assistant Professor at the MEEI, Harvard University, Boston, MA, USA daniel_polley@meei.harvard.edu