

**PERSONAL  
INFORMATION**

Name Perin, Paola  
 Birthdate May 12<sup>th</sup>, 1970  
 Birthplace Viadana (MN), ITALY  
 Nationality Italian  
 Languages Italian, English

**CURRENT POSITION**

Assistant Professor of Physiology, Dept. Brain and Behavioral Sciences, University of Pavia.  
 PI of Sensory Encoding Lab.  
 Co-PI Neuroimmunology Lab (Dept. of Molecular Medicine, University of Pavia – PI Prof. Roberto Pizzala)

**EDUCATION**

Dates (from-to) 1988-1992  
 Organization University of Pavia  
 Subject M.Sc. in Biology (summa cum laude)

Dates (from-to) 1992-1996  
 Organization Joint Universities (“Consorzio”) of Pavia, Milan, Genoa, Turin  
 Subject Ph.D. in Physiological Sciences

**WORK EXPERIENCE**

Dates (from-to) *June-December 1993*  
 Predoctoral fellowship from the University of Pavia for lab work at Baylor College of Medicine (Houston, TX), PI: Prof. Arthur M. Brown

*January-July 1994*  
 Research Associate, Baylor College of Medicine, Houston (TX)

*1997-1998*  
 Postdoctoral Fellow, Dept. Pharmacology, Tulane University, New Orleans (LA). PI: Prof. Paul S. Guth

*1998-current*  
 Assistant Professor in Physiology, Faculty of Pharmacy, University of Pavia

*July-September 1999*  
 Research Associate, Wayne State University, Detroit (MI). PI: Prof. Dennis G. Drescher

*July 2003- February 2005*  
 Research Associate, University of Chicago, Chicago (IL). PI: Prof. Jay M. Goldberg

PROFESSIONAL MEMBERSHIPS	Other
Scientific societies:	AINI (Associazione Italiana di Neuroimmunologia) OCNS (Organization for Computational Neuroscience) ARO (Association for Research in Otolaryngology) Society for Neuroscience
Charities:	AIT (Associazione Italiana Tinnitus- Scientific Advisor) AU-TU (Acufene Uniti – Tinnitus United- Founding member) Fondazione AMMI
Other:	COST TINNET (2014-2018)
<b>EDITORIAL ACTIVITY</b>	<i>Current:</i>
Journals:	Review Editor for Neuro-Otology and for Auditory Cognitive Neuroscience. Topic Editor for Brain Sciences Member of the Scientific Committee of the journal “Argomenti di Otolaringoiatria Moderna” Reviewer for: Frontiers in Cellular Neuroscience, Frontiers in Immunology, Frontiers in Neuroanatomy, BMC Neuroscience, Journal of Physiology, Trends in Hearing, JoVE.
	<i>2019-20</i> Editor for the Frontiers Special Topic: “Neuroimmunology of the inner ear”
	<i>2021-22</i> Editor for the Brain Sciences Special Topic: “Biomarkers in neurotology”
	<i>2022-2023</i> Editor for the Frontiers Special Topic: “Neuroimmunology of the inner ear-II”
Textbooks:	Co-author in the following textbooks: <i>2010</i> - Fisiologia: molecole, cellule e sistemi (D'Angelo, Peres), EdiErmes <i>2013</i> - Cellule, tessuti, sistemi (Zaccheo, Pestarino), Pearson
<b>TEACHING ACTIVITY</b> University of Pavia	2020/21-current General Pathology and Pathophysiology (5CFU, CTF) <i>2008/09-current</i> Anatomy and Cell Physiology (9 CFU, L.M. Pharmacy) <i>2010/11-current</i> Sensory Physiology and Analysis (3CFU, L.M. Pharmacy/CTF) <i>2008/09-2015/16</i> Physiology of Sensory Receptors (3CFU, Neurobiology) <i>2003/04-2007/08</i> Ion Channel Biophysics (2CFU, Pharmacy/CTF) <i>2014/15-16/17</i>
HUNIMED	Human Physiology (Nursing School)

**DISSEMINATION**

*2015-current*

Lecturer for the topic “Mechanisms of tinnitus onset” in several Continuing Medical Education courses  
Speaker at several open meetings for tinnitus patients sponsored by AIT/AU-TU  
Host and speaker at Tinnitus Week initiatives for Italy

**SCIENTIFIC EXPERTISE**

**Histology**

Anatomy and histology of the nervous system and inner ear;  
Immunofluorescence;  
Cryoslicing;  
iDISCO;  
Temporal bone imaging;  
Stereology;  
Image analysis (FIJI, ITK-SNAP, MATLAB, python);  
Lightsheet microscopy;  
Confocal microscopy

**Computational neuroscience:**

Neuronal modeling with NEURON;  
Dynamic analysis of complex systems;  
MATLAB;  
Python

**Electrophysiology:**

Whole-cell patch clamp (ruptured and perforated);  
Capacitance measurements;  
Oocyte recording;  
Stimulation and recording from peripheral vestibular organs;  
Brain and sensory organ slices;  
Rodent ABR

**Other**

Ca<sup>2+</sup>-imaging;  
RT-PCR  
Hearing and Tinnitus behavioural testing  
3D segmentation of bioimages

**SCIENTIFIC INTERESTS**

My scientific interest has been focused on signal transmission in sensory systems, and in particular signal encoding and synaptic transmission in the auditory and vestibular system.  
For the first part of my career, I mainly studied signal processing by vestibular hair cells, especially as regards the influence of ion channels and Ca<sup>2+</sup> on response dynamics. Subsequently, my main research topic shifted to the central vestibular and auditory system, in particular neuroimmune interactions affecting it in health and pathology. Currently my main interests are the role of the choroid plexus and cranial bone marrow in neuroimmune interactions. As regards the ear, I would like to solve the puzzle of immune tolerance

to inner ear antigens, and what does the endolymphatic sac do to ensure it. As a long-term goal, I would like to understand the signals that say that a neural activity pattern is “wrong” in the auditory system and trigger plastic changes (helpful or maladaptive) in the neuronal circuits. Answering this question will help treating disorders such as tinnitus, where maladaptive plasticity appears to be key.

**GRANTS**

*2021*

*FBML – Grant from Fondazione Banca del Monte di Lombardia for the project “Perdita di udito e demenza: c’è un nesso neuroimmune?”. 30.500 EUR.*

*2008-current*

Donations from AIT Onlus (PI: Prof. Paola Perin, 5000-15000 EUR-yr)

*2018*

Internal Research funding from the Dept. of Molecular Medicine (PI: Prof. Roberto Pizzala, 16000 EUR)

*2017*

Universitiamo crowdfunding campaign (PI: Prof. Paola Perin, 17000 EUR)

*2011*

Miroglio grant for the project “Study of afferent transmission in vestibular organs” (PI: Prof. Paola Perin, 10000 EUR)

*2005-2008*

MURST Cofinancing extension: “Processes determining the sensory discharge dynamics in semicircular canals”. PI Prof. Paola Perin 2002-2007

NIH R01 Grant: "Cellular mechanisms of the vestibular system": PI: Prof. J. Goldberg

*2002-2004*

MURST Project: "Presynaptic modulation of transmitter release at the hair cell afferent synapse". PI: Prof. P. Valli

**COLLABORATIONS**

Fritjof Helmchen, Philipp Bethge, Fabian Voigt, University of Zurich  
Arnaud Norena, CNRS Marseille

Paolo Enrico, Università di Sassari

Marco Cosentino, Università dell’Insubria, Varese

Alberto Eibenstein, Alessandra Fioretti, Tinnitus Center, Roma

Giovanni Naldi, Paola Causin, UniMI

Stefania Barozzi, UniMI

Agnieszka Szczepek, Charité Hospital, Berlin

Cinzia Boselli, Unipv

Laura Batti, Wyss Center, Geneva

Andrea Bassi, PoliMI

Enrico Marsili – University of Nottingham at Ningbo, China

Member of the University of Manchester – Harvard Global Research Network for choroid plexus study in relation to neurodevelopment and the pathobiology of psychiatric illness

## PUBLICATIONS

## Full papers

1. Calisesi G, Ancora D, Tacconi C, Fantin A, Perin P, Pizzala R, Valentini G, Farina A, Bassi A. Enlarged Field of View in Spatially Modulated Selective Volume Illumination Microscopy. *Microsc Microanal.* 2022 Jun 14:1-10. doi: 10.1017/S1431927622012077.
2. Perin P, Rossetti R, Ricci C, Cossellu D, Lazzarini S, Bethge P, Voigt FF, Helmchen F, Batti L, Gantar I, Pizzala R. 3D Reconstruction of the Clarified Rat Hindbrain Choroid Plexus. *Front Cell Dev Biol.* 2021 9:692617. doi: 10.3389/fcell.2021.692617.
3. Perin P, Marino F, Varela-Nieto I, Szczepek AJ. Editorial: Neuroimmunology of the Inner Ear. *Front Neurol.* 2021 Feb 9;12:635359. doi: 10.3389/fneur.2021.635359.
4. Perin P, Mabou Tagne A, Enrico P, Marino F, Cosentino M, Pizzala R, Boselli C. Cannabinoids, inner ear, hearing and tinnitus: a neuroimmunological perspective. *Front. Neurol.* 11:505995 doi:10.3389/fneur.2020.505995
5. Barozzi S, Soi D, Intieri E, Giani M, Aldè M, Tonon E, Signorini L, Renieri A, Fallerini C, Perin P, Montini G, Ambrosetti U. Vestibular and audiological findings in the Alport syndrome. *Am J Med Genet A.* 2020 Aug 20. doi: 10.1002/ajmg.a.61796.
6. Voigt FF, Kirschenbaum D, Platonova E, Pagès S, Campbell RAA, Kastli R, Schaettin M, Egolf L, van der Bourg A, Bethge P, Haenraets K, Frézel N, Topilko T, Perin P, Hillier D, Hildebrand S, Schueth A, Roebroek A, Roska B, Stoeckli ET, Pizzala R, Renier N, Zeilhofer HU, Karayannis T, Ziegler U, Batti L, Holtmaat A, Lüscher C, Aguzzi A, Helmchen F. The mesoSPIM initiative: open-source light-sheet microscopes for imaging cleared tissue. *Nat Methods.* 2019 Sep 16. doi: 10.1038/s41592-019-0554-0.
7. Perin P, Voigt F.F., Bethge P., Helmchen F., Pizzala R. (2019) iDISCO+ for the study of neuroimmune architecture of the rat auditory brainstem. *Front. Neuroanat.* 13:15. doi: 10.3389/fnana.2019.00015
8. Gallus S, Lugo A, Garavello W, Bosetti C, Santoro E, Colombo P, Perin P, La Vecchia C, Langguth B. Prevalence and Determinants of Tinnitus in the Italian Adult Population. *Neuroepidemiology.* 2015;45(1):12-9. doi: 10.1159/000431376.
9. Venturino A, Oda A, Perin P. Hair cell-type dependent expression of basolateral ion channels shapes response dynamics in the frog utricle. *Front Cell Neurosci.* 2015 Sep 7;9:338.
10. Subramaniam S, Solinas S, Perin P, Locatelli F, Masetto S, D'Angelo E. Computational modeling predicts the ionic mechanism of late-onset responses in unipolar brush cells. *Front Cell Neurosci.* 2014 Aug 20;8:237.
11. Perin P, Botta L, Tritto S, Laforenza U (2012). Expression and localization of ryanodine receptors in the frog semicircular canal, *J Biomed Biotechnol.* vol. 2012, Article ID 398398, 6 pages, 2012. doi:10.1155/2012/398398.
12. Andreescu CE, Prestori F, Brandalise F, D'Errico A, De Jeu MT, Rossi P, Botta L, Kohr G, Perin P, D'Angelo E, De Zeeuw CI (2011) NR2A subunit of the N-methyl D-aspartate receptors are required for potentiation at the mossy fiber to granule cell synapse and vestibulo-cerebellar motor learning. *Neuroscience*;176:274-83.
13. Nigro MJ, Perin P, Magistretti J (2011) Differential effects of Zn<sup>2+</sup> on activation, deactivation, and inactivation kinetics in neuronal voltage-gated Na<sup>+</sup> channels. *Pflugers Arch.* 2011 Aug;462(2):331-47.

14. Perin P, Caldirola E, Cofrancesco P, Marini A (2011) Monitoring academic progress in a Faculty of Pharmacy, Je-LKS, v.7, n.1, 31-40.
15. Perin P, Tritto S, Botta L, Fontana JM, Gastaldi G, Masetto S, Tosco M, Laforenza U (2010) Aquaporin-6 expression in the cochlear sensory epithelium is downregulated by salicylates. *J Biomed Biotechnol*. Epub 2010 Jan 12.
16. Perin P, Lucchelli A (2010) I farmaci ototossici. *Tema Farmacia Anno XXVIII*, n.5, maggio 2010
17. Botta L, Tritto S, Perin P, Laforenza U, Gastaldi G, Zampini V, Zucca G, Valli S, Masetto S, Valli P. (2008). Histamine H1 receptors are expressed in mouse and frog semicircular canal sensory epithelia. *Neuroreport* 19; p. 425-429.
18. Catacuzzeno L, Fioretti B, Perin P, Franciolini F (2004). Spontaneous low-frequency voltage oscillations in frog saccular hair cells. *J Physiol* vol. 561, pp. 685-701.
19. Catacuzzeno L, Fioretti B, Perin P, Franciolini F (2003). Frog saccular hair cells dissociated with protease VIII exhibit inactivating BK currents, K(V) currents, and low-frequency electrical resonance. *Hearing res.* vol. 175, pp. 36-44.
20. Lelli A, Perin P, Martini M, Ciubotaru CD, Prigioni I, Valli P, Rossi ML, Mammano F (2003). Presynaptic calcium stores modulate afferent release in vestibular hair cells. *J Neurosci.* vol. 23, pp. 6894-6903.
21. Masetto S, Bosica M, Correia MJ, Ottersen OP, Zucca G, Perin P, Valli P. (2003). Na<sup>+</sup> currents in vestibular type I and type II hair cells of the embryo and adult chicken. *J Neurophysiol* vol. 90, pp. 1266-1278.
22. Ramahrishnan NA, Green GE, Pasha R, Drescher MJ, Swanson GS, Perin P, Lakhani RS, Ahsan SF, Hatfield JS, Khan KM, Drescher DG. (2002). Voltage-gated Ca<sup>2+</sup> channel Cav1.3 subunit expressed in the hair-cell epithelium of the sacculus of the trout *Oncorhynchus mykiss*: cloning and comparison across vertebrate classes. *Mol Brain Res.* vol. 109, pp. 69-83.
23. Botta L, Valli P, Asti A, Perin P, Zucca G., Racchi M., Govoni S., Pascale A. (2001). beta amyloid-induced disruption of ionic balance: studies on the isolated frog labyrinth. *NEUROREPORT.* vol. 12, pp. 2493-2497.
24. Holt JC, Lioudyno M, Athas G, Garcia MM, Perin P, Guth PS (2001). The effect of proteolytic enzymes on the alpha9-nicotinic receptor-mediated response in isolated frog vestibular hair cells. *Hearing Res.* vol. 152, pp. 25-42.
25. Perin P., Masetto S., Martini M, Rossi ML, Rubbini G, Rispoli G, Guth PS, Zucca G, Valli P (2001). Regional distribution of calcium currents in frog semicircular canal hair cells. *Hearing Res.* vol. 152, pp. 67-76.
26. Botta L, Mira E, Valli S, Zucca G, Perin P, Benvenuti C, Fossati A, Valli P (2000). Effects of betahistine metabolites on frog ampullar receptors. *Acta Otolaryngol.* vol. 120, pp. 25-27.
27. Masetto S, Perin P, Malusà A, Valli P (2000). Membrane properties of chick semicircular canal hair cells in situ during embryonic development. *J Neurophysiol.* vol. 83, pp. 2740-2756.
28. Zucca G, Botta L, Valli S, Giannoni B, Mira E, Perin P, Buizza A, Valli P (1999). Effects of caloric stimuli on frog ampullar receptors. *Hearing Res.* vol. 37, pp. 8-14.
29. Zucca G, Botta L, Valli S, Giannoni B, Mira E, Perin P, Valli P (1999). Caloric stimulation of ampullar receptors: a new method to produce mechanically-evoked responses in frog semicircular canals. *J Neurosci Meth.* vol. 88, pp. 141-151.
30. Perin P, Soto E, Vega R, Botta L, Masetto S, Zucca G, Valli P (2000). Calcium channels functional roles in the frog semicircular canal. *Neuroreport* vol. 11, pp. 417-420.

31. Botta L, Mira E, Valli S, Perin P, Zucca G, Valli P (1998). Effects of Betahistine on vestibular receptors of the frog. *Acta Otolaryngol.* vol. 118, pp. 519-523.
32. Guth PS, Holt JC, Perin P, Athas G, Garcia M, Puri A, Zucca G, Botta L, Valli P (1998). The metabotropic glutamate receptors of the vestibular organs. *Hearing Res.* vol. 125, pp. 154-162.
33. Guth PS, Perin P, Norris CH, Valli P (1998). The vestibular hair cell: post-transductional signal processing. *Prog Neurobiol.* vol. 54, pp. 193-247.
34. Norris CH, Miller AJ, Perin P, Holt JC, Guth PS (1998). Mechanisms and effects of transepithelial polarization in the isolated semicircular canal. *Hearing Res.* vol. 123, pp. 31-40.
35. Zucca G, Valli S, Valli P, Perin P, Mira E (1998). Why do benign paroxysmal positional vertigo (BPPV) episodes recover spontaneously?. *J Vestib Res.* vol. 8, pp. 325-329.
36. Toselli M, Perin P, Taglietti V. (1995). Muscarine inhibits w-conotoxin-sensitive calcium channels in a voltage- and time-dependent mode in the human neuroblastoma cell line SH-SY5Y. *J Neurophysiol.* vol. 74, pp. 1730-1741.

### Meeting presentations

1. Perin P. (2022) Orecchio e neuroinfiammazione. AIOLP Meeting, Bari September 28-October 1st 2022
2. Perin P, Cossellu D, Lazzarini S, Vivado E, Pizzala R. (2022), "3D reconstruction of the inner ear vascularization and temporal bone marrow in the rat", 57th Workshop on Inner Ear Biology, September 10-13th 2022, Trieste.
3. Cossellu D, Perin P, Lazzarini S, Pizzala R. (2022), "Automating vascular segmentation in the cleared auditory system", 57th Workshop on Inner Ear Biology, September 10-13th 2022, Trieste.
4. Perin P, Szczepek A, Murillo S, Varela-Nieto I (2022) *Frontiers: Neuro-immunology of the Inner Ear.* 57th Workshop on Inner Ear Biology, September 10-13th 2022, Trieste.
5. Perin P. (2021) Neuroflogosi e labirinto. SIO Meeting, Turin, November 10-13, 2021
6. Perin P., de Jonge H, Barozzi S. (2021) Melanocytes in the cochlea. SIO Meeting, November 10-13, 2021
7. Perin P. (2021) Neuroinfiammazione ed invecchiamento dell'orecchio. AIOLP Meeting, Riva del Garda (TN) September 26-29 2021
8. Cossellu D, Ricci C, Rossetti R, Perin P, Pizzala R (2020) "Bone channels and inflammation routes in the rat auditory system " BraYn – 3rd Brainstorming Research Assembly for Young Neuroscientists November 25-26, 2020 (online) NI07
9. Ricci C, Rossetti R, Cossellu D, Cobianchi L, Dondi D, Perin P, Pizzala R (2020) "Tools for large specimen clearing: applying SOCRAT to the auditory system of small and large mammals " BraYn – 3rd Brainstorming Research Assembly for Young Neuroscientists November 25-26, 2020 (online) NI24
10. Rossetti R, Ricci C, Cossellu D, Perin P, Pizzala R (2020) "What does the microanatomy of the choroid plexus tell us on its function? " BraYn – 3rd Brainstorming Research Assembly for Young Neuroscientists November 25-26, 2020 (online) NI25
11. Perin P. (2019) Vascular districts in the intact 4th ventricle of the rat: do we have the whole picture on circumventricular organs? LSF2019, December 4-6, Frankfurt

12. Perin P, Scarpa S, D'Onofrio S, Pizzala R (2019) "Vascular networks of rat choroid plexus and cochlear nucleus: do they communicate?" BraYn - 2nd Brainstorming Research Assembly for Young Neuroscientists November 14 - 16, 2019, Milano, Istituto Mario Negri
13. Barozzi S, Perin P, Ginocchio D. (2019) Possibile ruolo dei melanociti nei disturbi audio-vestibolari. XXXVII Congresso SIAF – November 6-9, Modena.
14. Perin P, Barcio V, D'Onofrio S, Scarpa S, Pizzala R. (2019) Vascular associations in the choroid plexus: do they matter for the auditory system?, 56th Workshop on Inner Ear Biology, September 7-10th, Padua.
15. Perin P, Barcio V, D'Onofrio S, Scarpa S, Pizzala R. (2019) Vascular network of the rat cochlear nuclei, 56th Workshop on Inner Ear Biology, September 7-10th, Padua.
16. Perin P. (2019) Acufeni e neuropatia, Cenacolo Italiano d Audiovestibologia, September 5-7th, Chieti
17. Perin P, 3D imaging and segmentation of the rat choroid plexus, Swiss Light-Sheet Microscopy Workshop, Zurich, 24-25 Apr 2019
18. Perin P, "Acufeni e plasticità sinaptica", 4° Update in vestibologia tra ricerca e clinica Arenzano (GE) 11 november 2018
19. Perin P, "Compensazione adattativa e patologica nelle vie acustiche centrali", VI Congresso Gruppo Campano ORL - Salerno, 15/17 november 2018
20. Perin P, Ceccarini M, Centineo A, Pizzala R. (2018) Choroid plexus association to the auditory system: observations in a clarified brainstem-inner ear preparation, 55th Workshop on Inner Ear Biology, September 6-8th, Berlin.
21. Perin P, Ceccarini M, Centineo A, Pizzala R. (2018) Segmentation and cell feature extraction in the clarified auditory system 55th Workshop on Inner Ear Biology, September 6-8th, Berlin.
22. Ceccarini M, Centineo A, Perin P, Pizzala R. (2018) Reconstruction of neuroimmune communication pathways between the cochlea and the 4th ventricle, XXVII AINI CONGRESS, May 8-11, Trieste.
23. Centineo A, Ceccarini M, Perin P, Pizzala R (2018) Stereological analysis of Iba1+ cells in clarified brain regions, XXVII AINI CONGRESS, May 8-11, Trieste.
24. Perin P, Ceccarini M, Centineo A, Pizzala R (2018) A clarified rat cochlea – brainstem preparation for the visualization of inflammation spread after ototoxic treatment, XXVII AINI CONGRESS, May 8-11, Trieste.
25. Perin P (2018), A clarified cochlea-auditory brainstem preparation for the visualization of inflammation spread after ototoxic treatment. Lightsheet microscopy workshop, March 19-20, Wyss Center, Geneva
26. Perin P, Venturino A, Ceccarini M, Centineo A, Pizzala R (2018), Neuroinflammatory responses in choroid plexus and dorsal cochlear nuclei after unilateral cochlear damage. TRI/TINNET Meeting, March 14-16, Regensburg
27. Perin P, Pizzala R (2017), Age-related changes in cochlear nuclei microglia and macrophages in the rat. 54th Workshop on Inner Ear Biology, September 13-16th, Hannover
28. Perin P, Venturino A, Pizzala R (2017) Choroid plexus trafficking of immune cells towards the rat cochlear nuclei after noise trauma or cochlear destruction XIII European Meeting on Glial Cells in Health and Disease July 8 –11th, Edimburgh
29. Venturino A; Colombo G; Sanchini G; Vitale V; Bertone V; Oda A; Pizzala R; Perin P. (2016) Does blocking microglial activation prevent tinnitus onset? Journal of Neuroimmune Pharmacology; 11:1, #16



30. Vitale V, Sanchini G, Solinas S, Pizzala R, Perin P (2016) Microglial subpopulations in rat DCN and their changes in tinnitus models Inner Ear Biology Workshop, September 17-21st, Montpellier
31. Perin P, Venturino A, Sanchini G, Vitale V, Pizzala R (2016) Microglial functional state modulation and tinnitus onset: comparison of different rat models. FENS Forum, July 5-9th, Copenhagen
32. Perin P, Venturino A, Solinas S, Bertone V, Pizzala R (2016) DCN microglia in rat tinnitus models: density, activation and possible roles. TRI/TINNET Meeting, March 15-18th, Nottingham (UK)
33. Perin P, Pizzala R, Oda A, Colombo G, Capetta A, Sanchini G, Vitale V, Venturino A (2015) Does blocking microglial activation prevent tinnitus onset? 52nd Workshop on Inner Ear Biology Workshop, August 30th-September 2nd, Rome
34. Perin P, Venturino A, Oda A, Capetta A, Colombo G, Sanchini G, Vitale V, Bertone V, Pizzala R. (2015) Microglia changes in rat dorsal cochlear nucleus correlate to behavioural tinnitus evidence. XII European Meeting on Glial Cells in Health and Disease, July 15–18th 2015, Bilbao
35. Venturino A, Rizza M, Pedrazzoli M, Perin P (2013). Trying hard not to listen: the evolution of information processing in vestibular hair cells. CNS meeting 2013, Paris.
36. Subramaniam S, Perin P, Solinas S, D'Angelo E (2013) The mechanisms of late-onset synaptic responses in a realistic model of Unipolar Brush Cells. CNS meeting 2013, Paris.
37. Venturino A, Barbaro S, Oda A, Boselli C, Ferraro D, Pizzala R, Perin P (2013). Microglia in the rat cochlear nuclei: a player in tinnitus-related circuit reorganization? TRI Meeting 2013, Valencia.
38. Perin P., Venturino A., Tritto S., Mansi R., Laforenza U (2012). Resonance and release shape afferent responses in the frog utricle. Fens forum 2012, Barcelona.
39. Subramaniam S, Perin P, Solinas S, D'Angelo E (2011) Modeling UBC intrinsic excitability BMC Neurosci. vol. 12, pp. 1-2.
40. Mansi R. Perin P.(2010) How Do Hair Cell Currents Shape Afferent Responses in the Frog Vestibular Organs? In: ARO Meeting. Anaheim CA
41. Perin P., Tritto S., Botta L., Laforenza U., Gastaldi G., Valli P. (2008). Salicylates Decrease AQP6 Expression in the Mouse Organ of Corti. In: ARO Abstracts 2008. Phoenix, AZ, 16-21 Feb 2008
42. Tritto S, Botta L, Laforenza U, Gastaldi G, Valli P, Perin P. (2008). Salicylates decrease AQP6 expression in the mouse organ of Corti. In: 45th Inner Ear Biology Workshop. Ferrara, 21 - 24 settembre 2008
43. Tritto S, Botta L, Laforenza U, Gastaldi G, Perin P. (2007). Localization of calcium stores in the frog labyrinth. In: Segnali di Calcio in Piemonte. Novara
44. Perin P., D'Angelo E (2006) Electrotonic analysis of UBCs. In The node and the network, Pavia
45. Perin P., Pascale A, Amadio M, Botta L, Valli P (2004). Voltage-dependent and store-mediated Ca<sup>2+</sup> sources in frog vestibular hair cells. In: ARO meeting. Daytona Beach FL
46. Perin P. (2003). Calcium channels and exocytosis in frog vestibular hair cells. In: Vestibular Pharmacology Symposium, Neuroscience Meeting. New Orleans.
47. Perin P., Pascale A, Pace J, Valli P (2002). Presynaptic Ca channels in frog canal hair cells. In: Barany Satellite Meeting. Orcas Island

48. Perin P., Masetto S, Valli P (2002). Differential expression of voltage-dependent currents by hair cells from the frog utricle and canal. In: ARO Meeting, St. Petersburg FL
49. Perin P., Masetto S, Zucca G, Valli P (2001). Sodium currents in spherical hair cells from the frog utricle and lagena. In: ARO Meeting. St Petersburg FL
50. Perin P., Masetto S, Zucca G, Valli P (2001). Current expression patterns in hair cells from the frog utricle. In: Symposium: "Signal transduction in the auditory system". Goettingen, Germany
51. Masetto S, Malusà, Perin P., Zucca G, Valli P (2001). Depolarization-activated inward currents in type II hair cells of the chick semicircular canal during embryonic development. In: ARO Meeting. St. Petersburg FL
52. Ramakrishnan N.A, Swanson G.J, Perin P., Pasha R, Myers S.F, Drescher D.G (2001). Functional analysis of an N-type, alpha-1B calcium channel coding sequence from the vestibular hair-cell layer of the trout sacculus. In: ARO Meeting. St. Petersburg FL
53. Perin P., Soto E, Botta L, Masetto S, Zucca G., Valli P (2000). Functional roles of voltage-operated calcium channels in the frog semicircular canal. In: ARO Meeting. St. Petersburg FL
54. Perin P., Masetto S, Valli P (1999). Voltage-operated calcium channels in frog vestibular hair cells. In: SIF meeting. Rome
55. Perin P., Masetto S, Valli P, Guth P.S (1999). Regional distribution of voltage-operated calcium channels in the frog vestibular organs. In: ARO Meeting. St. Petersburg FL
56. Guth P.S, Zucca G, Botta L, Perin P., Holt J.C, Puri A, Valli P (1998). The pharmacology of the metabotropic glutamate receptor of frog semicircular canal. In: ARO Meeting, St. Petersburg FL
57. Masetto S, Perin P., Malusà, Zucca G, Valli P (1998). Development of basolateral potassium currents in semicircular canal hair cells of the chick embryo. In: Pfluegers Arch., vol. 435, p. R9
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59. Norris, C.H., Perin P., Miller A (1997). Responses to endolymphatic polarization in the isolated semicircular canal. In: 34th workshop on inner ear biology, Rosa Marina, ITALY
60. Mira E, Valli S, Masetto S, Perin P., Valli P (1996). Ion mechanisms involved in receptor current flow in vestibular hair cells. In: Barany Society Meeting. Sydney
61. Masetto S, Perin P., Botta L, Zucca G, Valli P (1996). Ion channels involved in frog vestibular sensory adaptation. In: Gordon Research Conference. New London, New Hampshire

### Continuing Medical Education and Higher Education Courses

1. Invited lecture: "Come funziona il microcircolo vestibolococleare?" Convegno AMMI 29 Ottobre 2022, Roma
2. Invited lecture: "Come funziona il microcircolo vestibolococleare?" 5° Congresso Nazionale Cenacolo Italiano di AudioVestibologia: Focus On Vascular Vertigo, Francavilla al Mare (CH) 15-17 settembre 2022

3. Organizer of the course: "Acufeni: teoria e clinica." Related to the Tinnitus Awareness Week, Pavia, February 8<sup>th</sup>, 2020
4. Lecture "Teorie neurofisiologiche dell'acufene" in the course: "Acufeni: teoria e clinica." Related to the Tinnitus Awareness Week, Pavia, February 8<sup>th</sup>, 2020
5. Invited Lecture "Quantifying shape in complex cells" in the NEURON School (Alghero, Italy) May 2019
6. Invited Lecture "Quantifying shape in complex cells" in the NEURON School (Alghero, Italy) April 2018
7. Invited Lecture: "Compensazione adattativa e patologica nelle vie acustiche centrali" – nel corso ECM RINOPATIE VASOMOTORIE E ACUFENI: STATO DELL'ARTE, Gasperina (CZ) October 10<sup>th</sup>, 2019
8. Invited Lecture: "Compensazione adattativa e patologica nelle vie acustiche centrali" – nel VI Congresso NAZIONALE G.C.ORL "Nuove evidenze, orientamenti e strategie delle patologie ORL più comuni", Salerno, 15/16/17 novembre 2018
9. Invited Lecture: "Acufeni e plasticità sinaptica" – nel corso ECM - 4° UPDATE IN VESTIBOLOGIA TRA RICERCA E CLINICA - Arenzano (GE), 10 Novembre 2018
10. Invited Lecture: "Basi fisiopatologiche dell'acufene" – in CME course "XXV Anni del Corso di Laurea in tecniche audioprotesiche - Novità cliniche e tecnologiche in ambito audioprotesico" - Rome, Università degli studi Tor Vergata, November 10-11 2017
11. Invited Lecture: "Acufene e vertigini: novità nella ricerca in neuroscienze" – in CME course "Aggiornamento su acufeni e vertigini" – Organized by Dott. Vincenzo Marcelli – Naples, March 4<sup>th</sup>, 2017
12. Invited Lecture: "Acufene e vertigini: novità nella ricerca in neuroscienze" – in CME course "Acufeni e vertigini: corso teorico-pratico" – Organized by Prof. Alberto Eibenstein – Rome October 8<sup>th</sup>, 2016
13. Invited Lecture: "Acufene: novità nella ricerca in neuroscienze" – in CME course "Acufeni: esperienze multidisciplinari nell'ambito del progetto europeo COST TINNET" – Organized by Prof. Alberto Eibenstein – Rome 26<sup>th</sup> February, 2016
14. Invited Lecture: "Acufene: novità nella ricerca in neuroscienze" in Master course "La riabilitazione audiologica nel bambino e nell'anziano: la gestione delle complessità" – Organized by Prof. Alessandro Martini – Padua December 12<sup>th</sup>, 2015
15. Invited Lecture: "Acufene: novità nella ricerca in neuroscienze" – in CME course "Acufeni e disturbi dell'udito: aspetti multidisciplinari nell'ambito del progetto europeo COST TINNET e presentazione casi clinici" – Organized by Prof. Alberto Eibenstein – Rome, October 3<sup>rd</sup> 2015

#### FURTHER INFORMATION ON THE WEB

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<https://orcid.org/0000-0002-5897-4444>