Enrica Strettoi

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Education

1983-	Graduated "cum laude" in Biological Science, University of Pisa
1986 – 1988	Postdoctoral Fellow, Faculty of Medicine/Department of Anatomy and Cellular Biology/Harvard Medical School/Boston, USA. Recipient of an international Fellowship of the Boehringer Ingelheim Fond (Germany)
1989-	Doctor of Research in Neuroscience, University of Pisa

Employment

2018 – present	Director of Research, CNR Neuroscience Institute, Pisa, Italy
2001 – 2018	Senior Investigator , Institute of Neuroscience/Department of Biomedical Sciences/ Italian National Research Council (CNR), Pisa/Italy
1988 – 2001	Tenured Researcher, Institute of Neurophysiology/Italian National Research Council (CNR), Pisa/Italy

University Teaching

2018- present	Adjunct Professor of Physiological Genomics, Neuroscience Degree, Faculty of Science, University of Pisa, Italy
2014-2018	Adjunct Professor of Comparative Neurobiology, Neuroscience Degree, Faculty of Science, University of Pisa, Italy
2014	National habilitations for the role of Full Professor of Physiology (05-D1)
2014	National habilitations for the role of Full Professor of Human Anatomy (05-H1)
2013 - present	Member (External Expert) of the Regional Doctoral School in Neuroscience, Florence, Pisa & Siena Universities
2001- 2013	Member of the Doctoral course in Neuroscience, University of Pisa
2004-2010	Faculty Member of the international summer course "Fundamental issues in vision research", Marine Biological Laboratories, Woods Hole, USA.
2004 - 2005	Adjunct Professor of Neurobiology, Faculty of Science, Biology and Biotechnology degrees, University of Pisa, Italy
1999- 2001	Adjunct Professor of Physiology, Faculty of Pharmacy, University of Pisa, Italy

Dr. Strettoi has been a mentor of approximately 20 undergraduate and PhD students in Neuroscience, the latter fully supported with her own funding grants; she has mentored various international students both in Italy and during her visit to foreign laboratories. She teaches in the Neuroscience course at the University of Pisa.

Institutional responsibilities

2005- 2010/ 2011-2015	Director Delegate (RUOS), Head of the Pisa site of the Institute of Neuroscience, Italian National Research Council (CNR), Pisa, Italy. RUOS of the Florence site of IN-CNR.

2011- 2015	Head of the national project “Neuroscience: Molecular bases and clinical applications“ of the CNR, Department of Biomedical Sciences
1998 – 2005	Responsible for animal experimentation, Institute of Neurophysiology (later, Institute of Neuroscience), Italian National Research Council (CNR), Pisa, Italy

Honors

2023 – Silver Fellow of the Association for Research in Vision and Ophthalmology, ARVO
2021- Nominated among the Top Women in European Vision Research and Ophthalmology, European Vision Institute, EVI
2016 - International Research Collaborative Award IRCA), University of Sydney, Australia. Award to support a period of research in the laboratories of the Save Sight Institute (Sydney) for studies on the primate retina (July-September 2016).
2011 - Mention of the Emory University Eye Center, Atlanta, USA, for “outstanding contributions to the field of Eye Research”.
2010 - Mention for outstanding scientific results in the "Highlights 2009/2010" of the CNR.
2009 - Award of the “Associazione Toscana Retinopatici ed Ipovedenti onlus”, ATRI, for scientific activities and personal dedication to the cure of retinal diseases.
2004 - Mention of the President of the Italian CNR for the publication of a study recognised as excellent contribution to the mission of the CNR.

Commissions of trust (selection)

2021-	Grant application evaluator for the European Science Foundation
2020-present	Member of the Scientific Advisory Panel, Moorfield’s EYE Hospital NHS Foundation, London, UK
2018-	Ad hoc member, evaluating Committee, NIH Board of Scientific Councilors, Bethesda, USA
2018, 2019	Member of the Short Term Mobility evaluation committee, CNR
2018-2021	Member, International Awards Committee, ARVO (Association for Research in Vision and Ophthalmology), USA
2015-2018	Member, Annual Meeting Program Committee of ARVO (Association for Research in Vision and Ophthalmology), USA
2013	Member, International search committee, selection of European Research Award recipient
2011-2017	Head of the national CNR project ME.PO2 “Neuroscience: molecular basis and clinical applications” of the Department of Medicine, CNR, Italy
2010	Scientific evaluator, advanced ERC research award, EU

Editorial Boards

2018-present	Editorial board member, Scientific Reports
2014-present	Associate Editor, Frontiers in Neuroanatomy
2014–present	Editorial board member, The Journal of Comparative Neurology, Wiley-LISS, USA
2011–present	Editorial board member, Molecular Vision, USA

Dr E. Strettoi acts as “ad hoc” referee for the European Research Council, the Italian Ministry of Education, the National French Research Agency, the European Science Foundation and various international organisms and non-profit organizations (i.e. Retinitis Pigmentosa Society of UK Countries etc.). She also acts as a referee for numerous scientific journals in the field of vision research, ophthalmology and Neuroscience. Examples are the Journal of Neuroscience, Nature, PNAS, Plos Biology, Frontiers, iScience etc. She has also been appointed as a member of committees for the PhD defense of national and international PhD students and for the evaluation of candidates for international academic positions.

Membership of scientific societies

Member of the Association of Research for Vision and Ophthalmology (ARVO)
Member of the Italian Society for Neurosciences (SINS)

Organization of international conferences (selection)

2019. Organizer of a scientific symposium within the annual retreat of the CNR Neuroscience Institute, Pisa.

2015-2018: Member of the Annual Meeting Program Committee, ARVO (association for Research in Vision and Ophthalmology, USA). Collaboration to the scientific organization of the annual meeting (12,000 participants) and organization of two minisymposia in 2017 (Baltimore meeting) and one full symposium in 2018 (Honolulu meeting).

2011. Co-organizer and Speaker. ERM, international European Retina Meeting, Amsterdam, Nederland

2010. Co-organizer and Speaker. 16th Retina International World Conference, Stresa, Italy

Ongoing scientific collaborations

- Antonino Cattaneo, Scuola Normale Superiore, Pisa, Italy. Neurotrophic factors in retinal degeneration.
- Claudia Gargini, Department of Pharmacy, University of Pisa, Italy. Pathophysiology of Retinitis Pigmentosa: animal model studies.
- Stanislao Rizzo, Policlinico Gemelli, Rome. Translational studies for retinal repair

Contribution to science

E. Strettoi has a long standing research activity in the field of retinal neurobiology with a major expertise in studies of functional organization of the normal and diseased retina. Her main approach to study retinal biology is a combination of modern neurobiology techniques. She often works in collaboration with retinal neurophysiologists.

She has contributed classical studies on the organization of retinal networks active during scotopic vision in mammalian ("the rod pathway") and discovered major hallmarks of retinal architecture (such as the relative distribution of rod and cone bipolar cells) using combinations of light, confocal and electron microscopy, immunocytochemistry and quantitative neuroanatomy.

In the last 15 years, E. Strettoi has become an expert on animal models of Retinitis Pigmentosa, bringing to light characteristic abnormalities of inner retinal cells occurring as an effect of photoreceptor degeneration. These studies, contributing tour understanding of "retinal remodeling" have a profound impact on the design and efficacy of specific therapeutic approaches for vision restoration in genetically blinding diseases. For these lines of research Dr. Strettoi has been supported for two grant cycles, covering 10 years, by the National Eye Institute of the NIH, USA, as a foreign investigator. She is now supported by national and international agencies and foundations to develop approaches to delay photoreceptor degeneration in inherited diseases of the retina. These multidisciplinary studies make use of neuroanatomy, molecular biology and visual behavior techniques, have translational nature and bridge the gap between basic science, ophthalmology and clinical approaches.

Invited oral presentations (selection)

2023. Distinguished Seminar Series, UCL, California, USA. Invited speaker.
2021. Anatomical Society Virtual meeting. UK. Symposium invited speaker.
2019. Brain Mind Institute, Lausanne, Switzerland. Invited seminar.
2019. Ryan Iniative on Macular Research, RIMR Conference. Irvine, USA. Invited participant.
2019. ARVO-IT Chapter. Catania, Italy. Invited speaker.
2018. Monaciano International Symposium on Retinal Degeneration. II. Kellogg Eye Center, University of Michigan. Monaciano (Siena), Italy. Invited participant.

2018. New Horizons in Vision and Hearing Research, University of Tubingen, Germany. International symposium. Invited speaker.
2018. Sensory systems in health and disease, University of Oldenburg School. Verona, Italy. Speaker
2017. Town University, New York City, NY, USA. Seminar
2016. University of Melbourne. Department of Anatomy and Neuroscience. Seminar
2016. University of Sydney. Save Sight Institute, Sydney Eye Hospital. Seminar
2015. University of Washington, Department of Biological Structure, Seattle. Seminar.
2014. University of Catania, Italy. Opening lecture. "European Frontiers in Ocular Pharmacology series",
2014. CNR Institute of Neurobiology, Rome. Director seminar series, invited participant and speaker.
2013. Monaciano International Symposium on Retinal Degeneration. Kellogg Eye Center, University of Michigan. Monaciano (Siena), Italy. Invited participant.
2012. Optogenetics Symposium. Foundation Fighting Blindness and Harvard Medical School, Boston, USA. Invited speaker.

Recent Research Support

Project Title	*Funding source*	*Project Period*	*Summary*
THE-Tuscany Health Ecosystem. A PNRR project	**Italian MUR**	2022-2025	A large project gathering 7 Tuscany Universities, the CNR and several industries, all concentrating in developing strategies to promote health, from basic research to clinical application. Spoke 8 has a module focussing on imaging strategies of the CNS to accelerate diagnosis and cures of yet incurable diseases.
Pharmacological strategies for mutation-independent treatments of Retinitis Pigmentosa	**Velux Foundation, Switzerland**	2019-2023	Development of different pharmacological tools to target retinal inflammation to delay photoreceptor loss in RP
In the eye of the observer: Visual processing at the heart of the retina (Switchboard)	**European Union Innovative Training Network Marie Curie Action**	2015-2019	Recruitment, training and mentoring of international PhD students working within a European network to study retinal organization in normal and degeneration mouse models
Neonatal rat optic nerve lesion model: mouse NGF and CHF6467 bioequivalence evaluation – Pilot study	**Chiesi Farmaceutica SpA, Italy**	2017-2019	Therapeutic potentials of various forms of NGF to protect retinal ganglion cells from axotomy
Slowing down Retinitis Pigmentosa with a mutation-independent approach: in vivo assessment on multiple animal models	**Fondazione Roma (ITALY)**	2015-2018	In vivo approaches on different animal models of retinal degeneration to promote neuroprotection with pharmacological strategies
Sphingolipid ceramide signaling in retinal degeneration: in vivo targeting	**Macula Vision Research Foundation (USA)**	2013-2018	A study on mechanisms of retinal degeneration on mouse models used also in the present proposal

Publication highlights: H-index: 38 (Scholar). Author of 72 peer-reviewed articles, 5 encyclopedia chapters and 5 book chapters, with over 8,500 citations total (Scholar)

Articles

1. Strettoi E, Di Marco B, Orsini N, Napoli D. Retinal Plasticity. Int J Mol Sci. 2022 Jan 20;23(3):1138.
2. Puglia C, Santonocito D, Romeo G, Intagliata S, Romano GL, Strettoi E, Novelli E, Ostacolo C, Campiglia P, Sommella EM, Pignatello R, Bucolo C. Lipid Nanoparticles Traverse Non-Corneal Path to Reach the Posterior Eye Segment: In Vivo Evidence. Molecules. 2021 Aug 2;26(15):4673.
3. Kilicarslan I, Zanetti L, Novelli E, Schwarzer C, Strettoi E, Koschak A. Knockout of $Ca_V1.3$ L-type calcium channels in a mouse model of retinitis pigmentosa. Sci Rep. 2021 Jul 26;11(1):15146.
4. Napoli D, Biagioni M, Billeri F, Di Marco B, Orsini N, Novelli E, Strettoi E. Retinal Pigment Epithelium Remodeling in Mouse Models of Retinitis Pigmentosa. Int J Mol Sci. 2021 May 20;22(10):5381.
5. Thompson DA, Iannaccone A, Ali RR, Arshavsky VY, Audo I, Bainbridge JWB, Besirli CG, Birch DG, Branham KE, Cideciyan AV, Daiger SP, Dalkara D, Duncan JL, Fahim AT, Flannery JG, Gattegna R, Heckenlively JR, Heon E, Jayasundera KT, Khan NW, Klassen H, Leroy BP, Molday RS, Musch DC, Pennesi ME, Petersen-Jones SM, Pierce EA, Rao RC, Reh TA, Sahel JA, Sharon D, Sieving PA, Strettoi E, Yang P, Zacks DN; Monaciano Consortium. Advancing Clinical Trials for Inherited Retinal Diseases: Recommendations from the Second Monaciano Symposium. Transl Vis Sci Technol. 2020 Jun 3;9(7):2.
6. Stefanov A, Novelli E, Strettoi E. Inner retinal preservation in the photoinducible I307N rhodopsin mutant mouse, a model of autosomal dominant retinitis pigmentosa. J Comp Neurol. 2020 Jun 15;528(9):1502-1522.
7. Stefanov A, Novelli E, Strettoi E. *Inner retinal preservation in the photoinducible I307N rhodopsin mutant mouse, a model of autosomal dominant retinitis pigmentosa*. J Comp Neurol. 2019 Dec 6. doi: 10.1002/cne.24838.
8. Testa G, Mainardi M, Morelli C, Olimpico F, Pancrazi L, Petrella C, Severini C, Florio R, Malerba F, Stefanov A, Strettoi E, Brandi R, Arisi I, Heppenstall P, Costa M, Capsoni S, Cattaneo A. *The NGF(R100W) Mutation Specifically Impairs Nociception without Affecting Cognitive Performance in a Mouse Model of Hereditary Sensory and Autonomic Neuropathy Type V*. J Neurosci. 2019 Dec 4;39(49):9702-9715. doi: 10.1523/JNEUROSCI.0688-19.2019.
9. Falasconi A, Biagioni M, Novelli E, Piano I, Gargini C, Strettoi E. *Retinal Phenotype in the rd9 Mutant Mouse, a Model of X-Linked RP.* Front Neurosci. 2019 Sep 19;13:991. doi: 10.3389/fnins.2019.00991. eCollection 2019. PubMed PMID: 31607844; PubMed Central PMCID: PMC6761883.
10. Guadagni V, Biagioni M, Novelli E, Aretini P, Mazzanti CM, Strettoi E. *Rescuing cones and daylight vision in retinitis pigmentosa mice.* FASEB J. 2019 Sep;33(9):10177-10192. doi: 10.1096/fj.201900414R.
11. Lupori L, Sagona G, Fuchs C, Mazziotti R, Stefanov A, Putignano E, Napoli D, Strettoi E, Ciani E, Pizzorusso T. *Site-specific abnormalities in the visual system of a mouse model of CDKL5 deficiency disorder.* Hum Mol Genet. 2019 Sep 1;28(17):2851-2861. doi: 10.1093/hmg/ddz102.
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13. Strettoi E, Masri RA, Grünert U. *AII amacrine cells in the primate fovea contribute to photopic vision*. Sci Rep. 2018 Nov 6;8(1):16429. doi: 10.1038/s41598-018-34621-2.
14. Gargini C, Novelli E, Piano I, Biagioni M, Strettoi E. *Pattern of retinal morphological and functional decay in a light-inducible, rhodopsin mutant mouse.* Sci Rep. 2017 Jul 18;7(1):5730.
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16. Guadagni V, Cerri C, Piano I, Novelli E, Gargini C, Fiorentini C, Caleo M, Strettoi E. *The bacterial toxin CNF1 as a tool to induce retinal degeneration reminiscent of retinitis pigmentosa*. Sci Rep. 2016 Oct 24;6:35919.
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19. Piano I, Novelli E, Della Santina L, Strettoi E, Cervetto L, Gargini C. *Involvement of Autophagic Pathway in the Progression of Retinal Degeneration in a Mouse Model of Diabetes.* Front Cell Neurosci. 2016 Feb 19;10:42.

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22. Guadagni V, Novelli E, Piano I, Gargini C, Strettoi E. *Pharmacological approaches to retinitis pigmentosa: A laboratory perspective.* Prog Retin Eye Res. 2015 Sep;48:62-81.

23. Thompson DA, Ali RR, Banin E, Branham KE, Flannery JG, Gamm DM, Hauswirth WW, Heckenlively JR, Iannaccone A, Jayasundera KT, Khan NW, Molday RS, Pennesi ME, Reh TA, Weleber RG, Zacks DN; Monaciano Consortium. *Advancing therapeutic strategies for inherited retinal degeneration: recommendations from the Monaciano Symposium.* Invest Ophthalmol Vis Sci. 2015 Feb 9;56(2):918-31.

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