

PERSONAL INFORMATION



Maria Pia Abbracchio

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POSITION

Deputy Rector (2018-2024) and Vice Rector for Research,
University of Milan, Italy

WORK EXPERIENCE

2018–Present

Deputy Rector (2018-2024) and Vice Rector for Research
University of Milan, Milan (Italy)

2003–Present

Head, Laboratory of Molecular and Cellular Pharmacology of Purinergic Transmission

Department of Pharmacological and Biomolecular Sciences, Via Balzaretti 9, Milan (Italy)

Main research interests concern the pathophysiological roles of extracellular nucleosides and nucleotides and their receptors (the P2 receptors), with special focus on their role in the growth, survival, differentiation and death of central and peripheral nervous system cells, as well as in degenerative inflammatory events. Efforts are aimed at the development of new neuro-reparative/regenerative strategies in diseases like multiple sclerosis, amyotrophic lateral sclerosis, cerebral ischemia and neuropathic trigeminal pain. She has developed unique expertise in the physiopathology of glial cells (astrocytes, oligodendrocytes and microglia), which led her recent work to focus on the "stem" properties of some of these cells after damage, and on the possibility of using purinergic ligands for inducing these cells to generate new neurons and new glial cells and exert trophic effects in the brain and spinal cord in order to develop innovative repair strategies.

2002–Present

Full Professor of Pharmacology
University of Milan, Milan (Italy)

1998–2002

Associate Professor of Pharmacology
University of Milan, Milan (Italy)

1993–1998

Assistant Professor of Neuropsychopharmacology
University of Milan, Milan (Italy)

1992–1993

Honorary Research Fellow
University College of London, London (UK)

1982–1992

Researcher
University of Milan, Milan (Italy)

1980–1982

Postdoctoral fellow

Department of Pharmacology, Medical School, University of Texas (USA)

EDUCATION AND TRAINING

1979

Master's degree in Pharmacy

110/110 con lode

University of Milan, Milan (Italy)

1984

Postdoctoral degree in Experimental Toxicology

70/70

University of Milan, Milan (Italy)

1988

Research Doctorate in Experimental Medicine

MIUR, Rome (Italy)

PERSONAL SKILLS

Mother tongue(s)

Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
French	A2	B2	A2	A2	B1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

Experience in public engagement and scientific communication to non-scientific public media (newspapers, TV) and author of several press releases (both in Italy and in the United States, see Scientific American at: <http://www.sciam.com/article.cfm?id=controlling-cellular-gate&SID=mail>), interviews and invitations to public debates and television programs.

She has given approximately 150 oral presentations (mostly by invitation) and seminars.

Selection of invited presentations at scientific conferences or at academic/private Institutions:

- Society for Neuroscience Annual Meeting, Atlanta, USA, 14-18 October 2006, Invited speaker (press release of the American Society for Neuroscience).
- Astra Zeneca, Molndal, Sweden, 22 November 2006, Seminar by invitation (Guest of Dr. Hans vanGiezen).
- Second Joint Italian-German Purine Club Meeting, Leipzig, Germany, 12-15 September 2007, invited speaker.
- UCB Pharma, Chateau de Limelette, Belgium, 25 October 2007, Seminar by invitation (Guest of Dr. Alain Matagne, head of the CNS Research Management Department).
- Annual meeting of the Hamilton Neurorestorative Group, McMaster University Health Sciences Center, Hamilton, Ontario, Canada, 21 January 2008, Plenary reading by invitation.
- Purines Conference 2008, 29 June - 2 July 2008, Copenhagen, Denmark, invited speaker.
- American Society for Neurochemistry, Charleston, South Carolina, USA, 7-11 March 2009, Invited speaker.
- Seminars on Genome Research, Helmholtz Zentrum München, Neuherberg, Germany, April 23, 2009, Seminar by invitation (Guest of Prof. Magdalena Gotz, Director, Institute of Stem Cell Research).

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- Sanofi-Aventis R&D, Paris, France, 2 July 2009, Seminar by invitation (Guest of Dr. Fabrice Viviani, Associate Vice-President of Exploratory and Internal Medicine, Therapeutic Department, Discovery Research).
- Medal Ceremony and Honorary Degree to Prof. Geoffrey Burnstock, University of Ferrara, Italy, 4 June 2009, Plenary Reading by invitation.
- "Fukuoka Purine 2009: International Symposium on Purinergic Signaling in the New Strategy of Drug Discovery", Fukuoka, Japan, 23-25 July 2009, invited speaker.
- "Ligand-gated cationic channels and G protein-coupled receptors in the nervous system", 7-9 October 2009, Leipzig, Germany, invited speaker.
- Center for Integrative Biology (CIBIO), Trento, Italy, 12 May 2010, Seminar by invitation (Guest of Dr. Sheref Mansy, Researcher, and of Dr. Alessandro Quattrone, Director).
- 34th National Congress of the Italian Society of Pharmacology, Rimini, Italy, 14-17 September 2009, Invited speaker.
- National Congress of the Neuropsychopharmacology Society, Cagliari, 22-25, September 2010, invited speaker.
- Purines 2010, Adenine Nucleotides and Nucleosides in Medicine, Tarragona, Spain, 30 May - 2 June 2010, Invited speaker.
- Neuroscience Seminar Series, Max Delbrück Center for Molecular Medicine, Berlin, Germany, 24 June 2011, Seminar by invitation (Guest of Prof. Helmut Kettenmann, Director).
- 4th Joint German-Italian Purine Club Meeting, Bonn, Germany, 22-25 July 2011, invited speaker.
- 10th Euroglia Meeting, Prague, 13-17 September 2011, Invited speaker.
- 23rd Biennial Meeting of the International and the European Society for Neurochemistry, 28 August - 1 September 2011, Athens, Greece, invited speaker.
- UK Purine Club 2011 Symposium, 2 November 2011, Cardiff, UK, Plenary Reading.
- Purine 2012, 30 May - 2 June 2012, Fukuoka, Japan, Plenary Reading by invitation.
- 50th Anniversary of the Hungarian Society for Experimental and Clinical Pharmacology, Sept 19-21, 2012, Budapest, Hungary, Invited speaker.
- Annual Purine Club meeting, 13-14 September 2013, Pisa, Italy, Plenary Reading by invitation.
- International Society for Neurochemistry / American Society for Neurochemistry meeting, 20-24 April 2013, Cancun, Mexico, Invited speaker.
- 36th National Congress of the Italian Society of Pharmacology, Turin, Italy, 23-26 October 2013. Invited speaker.
- AISM Annual Scientific Congress and its Foundation, Rome, Italy, 28-29 May 2014. Invited speaker.
- XVIII National Congress of the Italian Society of Neuropsychopharmacology, Turin, Italy, 3-6 June 2014, invited speaker.
- Purines 2014, Bonn, Germany, 23-27 July 2014, invited speaker.
- II International Congress on Purinergic Signaling in South America and V Meeting of the Brazilian Purine Club, Maresias Beach, Brazil, 30 May - 2 June 2015, Plenary Reading by invitation.
- European Society for Neurochemistry's Conference Molecular Mechanisms of Regulation in the Nervous System, Tartu, Estonia, 14-17 June 2015, Invited speaker.
- 6th Joint German-Italian Purine Club Meeting. International Conference on Purinergic Signaling, Hamburg, Germany, 23-25 July 2015, invited speaker.
- 25th Meeting of the International Society for Neurochemistry, Cairns, Australia, 23-27 August 2015, Plenary Reading by invitation, organizer of a symposium and moderator.
- Paracelsus Medical University, Salzburg, Austria, 29 September 2015, Seminar by invitation (Guest of Prof. Ludwig Aigner, Director, Institute of Molecular Regenerative Medicine).
- 16th Congress of the Italian Society of Neurosciences (SINS), Cagliari, 8-11 October 2015. Invited speaker.
- 37th Congress of the Italian Society of Pharmacology, Naples, Italy, 27-30 October 2015, invited speaker.
- Keystone Symposium on Purinergic Signaling, Vancouver, Canada, 24-29 January 2016, Vancouver, British Columbia, invited speaker and session chairman.
- Evolution brings Ca²⁺ and ATP together to control life and death, 16-17 March 2016, The

Royal Society at Chicheley Hall, Buckinghamshire, UK, Invited speaker.

- 1st UK / Italian Purine Club Meeting, 13-14 September 2016, Bristol, UK, Plenary Reading by invitation.
- Royal Academy of Pharmacy, 15 September 2016, Madrid, Spain, Plenary Reading by invitation on the occasion of his appointment "in the name of his majesty Felipe VI" as a Foreign Member of the Academy.
- Virginia Commonwealth University Medical Center, Richmond, VA, USA, 10 November 2016, Seminar by invitation (Guest of Prof. Babette Fuss).
- Meeting "Sperimentazione Clinica In Neurologia - Ricerca di base e pratica clinica insieme per una cura migliore", Casa di Cura del Policlinico di Milano, June 21, 2018, *Invited speaker*
- Seminars. Humanitas Research Hospital and University, Pieve Emanuele, Milano, 25 Marzo 2019, *Invited speaker* (guest of Prof. Michela Matteoli)
- Annual Scientific Congress Italian Multiple Sclerosis Society and its Foundation, Rome, May 29-31, 2019, *Invited Speaker*
- 39° Congresso Nazionale della Società Italiana di Farmacologia, session on: "InnovationFlow and the players for translational research", Florence, Nov. 20-23, 2019, *Invited Speaker*.
- Meeting "SPERIMENTAZIONE CLINICA. QUALI NOVITÀ (SCIENTIFICHE E NORMATIVE) NELLA RICERCA CLINICA?" Associazione Farmaceutici Industria, Università degli Studi di Milano, Feb 13, 2020, *Invited Speaker*.

Organisational / managerial skills

- Oct 1st 2018-Sept 30th 2024: Deputy Rector of the University of Milan, with all the legal delegations to substitute the Rector; official and permanent Member of the Academic Senate and of the Administration Council of the University of Milan
- Oct 1st 2018-Sept 30th 2020 (renewable): Vice Rector for Research, a service which encharges her to be a Member of the Research Observatory of the University of Milan, of the Unimi2040 Committee devoted to designing the University of the future
- 2017: DELEGATE of the Rector at CRUI (Conference of the Rectors of Italian Universities) Rome, for Life Sciences and Health (Working Group n. 5).
- From 2003: INDEPENDENT EXPERT for the European Commission for the evaluation of funding research applications in the Health area (both remote evaluation and Committee activities in Brussels).
- From 2014: PRESIDENT of the IUPHAR (International Union of Pharmacology) Subcommittee for the classification and nomenclature of P2Y receptors
- From 2015 Member and, from 2016-2018, PRESIDENT of the Board of Directors (CdA) of Filarete Foundation (Milan), the center for knowledge transfer and business incubator of the University of Milan (direct nomination by the Rector).
- From Oct 2014 to Sept 2018: PRESIDENT of the Research Observatory of the University of Milan (direct nomination by the Rector).
- From 2003 Member and, from 2006-2012, PRESIDENT ELECT of the Committee for Pharmaceutical and Pharmacological Sciences of the University of Milan and official member of CARSTT, Committee for Scientific Research and Technology Transfer of the University of Milan.
- From 2016: VICE PRESIDENT of Gruppo2003 per la Ricerca, a non-profit association that brings together all the *highly cited* Italian scientists according to Thomson Reuters (less that 0.5% of all publishing scientists), aimed at promoting scientific research in Italy.
- From 2018: INVITED MEMBER of the Scientific Committee of the CUORE DOMANI Foundation.
- From 2017: INVITED MEMBER of the Scientific Committee of the ITALIAN MULTIPLE SCLEROSIS FOUNDATION.
- From 2016: MEMBER of the Scientific Committee invited each year to nominate candidates for the NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE (direct invitation by the Assembly for the Nobel Prize of the Karolinska Institute, Sweden).
- INVITED MEMBER of the "100-women experts Platform" for the STEM disciplines (Science, Technology, Engineering and Mathematics), a project promoted by the Pavia Observatory, under the aegis of the European Commission and the National Equality Councillor of the Italian Ministry of Labor and Social Policies, to promote the scientific career of young women
- From 2012: OFFICIAL MEMBER of the University Commission for Scientific Research and

Curriculum vitae

Technology Transfer, University of Milan

-1992-2000: MEMBER, COUNCILOR and SECRETARY of the Founding Committee of the "Purine Club", a non-profit scientific organization that brings together basic scientists and clinicians from 23 countries around the world interested in the pathophysiology of purines and pyrimidines.

-1993-1999: SCIENTIFIC SECRETARY of EPHAR (Federation of European Pharmacological Societies)

-SCIENTIFIC SECRETARY of about 50 international scientific congresses (including, Purines '92 and Purines '96, Milan, Italy, and the First European Congress of Pharmacology, Milan, 1995)

-REFEREE for the Ministry of University Education and Research (MIUR: Projects PRIN, CIVR, FIRB, ANVUR).

- REFEREE for the National Institutes of Health, USA.

- REFEREE for NATO.

- REFEREE for the Ontario Mental Health Foundation.

- REFEREE for the Canada Research Chairs Program.

- REFEREE for the International Human Frontier Science Program.

- REFEREE for the Biotechnology & Biological Sciences Research Council, UK.

- REFEREE for the Catalan Agency for Health Information, Spain.

- REFEREE for the French National Research Agency, France.

Job-related skills

Author/co-author of about 185 articles in international journals with peer review and Impact Factor, and other documents and monographs (total number of documents according to Web of Science: 231), cited more than 10,000 times.

H index: 63 (InCites, Thomson Reuters, 2015); H index: 52 (Scopus)

Inventor in 12 patent applications, 2 of which already granted.

She has received funding as **Principal Investigator** or **National Coordinator** from CNR, MIUR, Ministry of Health, Ministry of Foreign Affairs, Telethon, Cariplo Foundation, FISM) and from the European Commission, the Progressive MS Alliance and other international research agencies.

Principal Investigator in various research grants by national and foreign biotechnology and pharmaceutical companies.

Fundamental contributions:

o The proposal, together with Prof. G. Burnstock, of the currently used nomenclature for receptors responding to extracellular nucleotides (Abbracchio MP & Burnstock G: "Purinceptors: are there families of P2X and P2Y purinceptors?" *Pharm Ther.* 64: 445- 75, 1994, *highly cited paper*).

o One of the first demonstrations that purinergic agents induce reactive astrogliosis (Abbracchio et al., *Neurosci* 59: 67-76, 1994; Brambilla et al., *Br J Pharmacol.* 126: 563- 7, 1999) and influence the differentiation of astrocytes by synergizing with growth factors (Abbracchio et al., *Int J Dev Neurosci* 13: 685-93, 1995).

o The first evidence that purines can regulate apoptosis in rat and human astrocytes (Abbracchio et al., *Biochem Biophys Res Commun* 24: 908-15, 1995; Ceruti et al., *Mol Pharm* 63: 1437-47, 2003).

o One of the first opinion papers proposing that chronic neuroinflammation is a key factor in inhibiting neurogenesis, oligodendroglioneogenesis and repair in the damaged CNS (Marchetti and Abbracchio, *Trends Pharm Sci*, 26, 517-25, 2005).

o The "deorfanzation" of a new P2Y-like purinergic receptor (GPR17) activated by both uracil nucleotides and cysteinyl-leukotrienes and acting as a "damage sensor" in the CNS (Ciana et al., *EMBO J.* 25: 4615-27 , 2006; Lecca et al., *PLoS One* 3: e3579, 2008; Scientific American press release: <http://www.sciam.com/article.cfm?id=controlling-cellular-gate&SID=mail>).

o The first demonstration that the GPR17 receptor plays a key role in the specification of oligodendrocyte precursors and myelination (Lecca et al., 2008; Fumagalli et al., *J Biol Chem.*

286: 10593-604, 2011), in line with the subsequent results obtained by other authors (Chen et al., *Nat Neurosci* 12: 1398-406, 2009). Based on the studies of the Abbracchio team, in 2012 the National Multiple Sclerosis Society USA proposed GPR17 as a "model receptor" for new remyelinating therapies in neurodegenerative diseases.

A selection of top 10 publications as a "senior" author:

- Salvetti M, Lubetzki C, Kapoor R, Ristori G, Costa E, Battaglia MA, Andreaus M, **Abbracchio MP**, Matarese G, Zaratin P. *Steps towards Collective Sustainability in Biomedical Research. Trends Mol Med.* 2018 May;24(5):429-432. **IF: 11.02**
- Marschallinger, J, Schäffner, I, Klein, B, Gelfert, R, Rivera, FJ, Illes, S, Grassner, L, Janssen, M, Rotheneichner, P, Schmuckemair, C, Coras, R, Boccazzi, M, Chishty, M, Lagler, FB, Renic, M, Bauer, HC, Singewald, N, Blümcke, I, Bogdahn, U, Couillard-Despres, S, Lie DC, **Abbracchio MP**, Aigner, L. *Structural and functional rejuvenation of the aged brain by an approved anti-asthmatic drug. Nature Commun.* 6:8466, 2015. **IF: 11.47**
- Coppelino GT, Marangon D, Negri C, Menichetti G, Fumagalli M, Gelosa P, Dimou L, Furlan R, Lecca D, **Abbracchio MP**. *Differential local tissue permissiveness influences the final fate of GPR17-expressing oligodendrocyte precursors in two distinct models of demyelination. Glia.* 2018 May;66(5):1118-1130. **IF: 6.03**
- Fumagalli, M, Bonfanti, E, Daniele, S, Lecca, D, Martini, C, Trincavelli ML, **Abbracchio, M.P.** *The ubiquitin ligase Mdm2 controls oligodendrocyte maturation by intertwining mTOR with G protein-coupled receptor kinase 2 in the regulation of GPR17 receptor desensitization. Glia,* 63(12):2327-39, 2015. **IF: 6.03**
- Zaratin, P., Battaglia, M. A., **Abbracchio, M. P.** *Nonprofit foundations spur translational research. Trends Pharmacol. Sci.* 35, 552–5, 2014. **IF: 11.54**
- Ceruti S, Villa G, Fumagalli M, Colombo L, Magni G, Zanardelli M, Fabbretti E, Verderio C, van den Maagdenberg AM, Nistri A, **Abbracchio MP**. *Calcitonin gene-related peptide-mediated enhancement of purinergic neuron/glia communication by the algogenic factor bradykinin in mouse trigeminal ganglia from wild-type and R192Q Cav2.1 Knock-in mice: implications for basic mechanisms of migraine pain. J Neurosci.* 31: 3638-49, 2011. **IF: 7.27**
- Ceruti S, Villa G, Genovese T, Mazzon E, Longhi R, Rosa P, Bramanti P, Cuzzocrea S, **Abbracchio MP**. *The P2Y-like receptor GPR17 as a sensor of damage and a new potential target in spinal cord injury. Brain.* 132: 2206-18, 2009. **IF: 10.0**
- Di Virgilio F, Ceruti S, Bramanti P, **Abbracchio MP**. *Purinergic signalling in inflammation of the central nervous system. Trends Neurosci.* 32: 79-87, 2009. **IF: 12.79**
- **Abbracchio MP**, Burnstock G, Boeynaems JM, Barnard EA, Boyer JL, Kennedy C, Knight GE, Fumagalli M, Gachet C, Jacobson KA, Weisman GA. *International Union of Pharmacology LVIII: update on the P2Y G protein-coupled nucleotide receptors: from molecular mechanisms and pathophysiology to therapy. Pharmacol Rev.* 5: 281-341, 2006. **IF: 16.85**
- Ciana P, Fumagalli M, Trincavelli ML, Verderio C, Rosa P, Lecca D, Ferrario S, Parravicini C, Capra V, Gelosa P, Guerrini U, Belcredito S, Cimino M, Sironi L, Tremoli E, Rovati GE, Martini C, **Abbracchio MP**. *The orphan receptor GPR17 identified as a new dual uracil nucleotides/cysteiny-leukotrienes receptor. EMBO J.* 25: 4615-27, 2006. **IF: 10.09**

Selected list of funding received to support her research activity through competitive calls:

- 2018-2020. *Drug repurposing as a novel strategy to discover pro-regenerative therapies for neurological diseases: the challenge of progressive multiple sclerosis.* PRIN 2017, Ministero Italiano dell'Università e della Ricerca (MIUR), local PI and National Coordinator (3 research Units of 3 Universities)
- 2014-2016 (project renewed also for the period 2018-2021): Innovative re-myelinating strategies for multiple sclerosis via the exploitation of the new oligodendrocyte receptor GPR17. Italian Multiple Sclerosis Foundation (FISM), Principal Researcher (PI)
- 2013-2016. "Restoring function in stroke via GPR17, a new receptor involved in adult brain self-repair (RENEW IT)". European Commission, ERANET-Neuron, network consisting of 4 international partners. Role: Co-PI with Prof. Elena Tremoli
- 2011-2013. New molecular basis for migraine: role of the purinergic system and of pain mediators in the cross-talk between sensory neurons and neuro-inflammatory cells in trigeminal ganglia. Cariplo Foundation, PI and Coordinator of 2 Units.
- 2011-2013. Innovative re-myelinating strategies for multiple sclerosis via the exploitation of

Curriculum vitae

- the new oligodendrocyte receptor GPR17. Italian Multiple Sclerosis Foundation (FISM), PI.
- 2011-2013. Implementing brain repair in stroke via the exploitation of adult neurogenesis and gliogenesis: focus on the cross-talk between microglial and endogenous neural precursor cells. Italian Ministry of Health, PI.
 - 2010-2012. Studies of familial hemiplegic migraine transgenic mouse models and patients to investigate the crosstalk between sensory neurons and neuroinflammatory cells in trigeminal ganglia in relation to migraine pain. Telethon Foundation, PI.
 - 2008-2011. Purinoceptors and neuroprotection: focus on the new purinergic receptor GPR17. Italian Ministry of University and Research (MIUR) N. 2008XFMEA3, PI and Coordinator of 5 units.
 - 2008-2010. "Implementation of endogenous neurogenesis and gliogenesis via the purinergic system: a new strategy to repair acute neurodegenerative disease". Italian Ministry of Health, PI.

ADDITIONAL INFORMATION

Honours and awards

- January 2017, winner of the international award "**LE TECNOVISIONARIE**" for Scientific and Technological Research, granted by the Women and Technologies Association. Reason for the Award: "the award is given to women who stand out for their professional commitment, favoring the social impact, transparency in behavior and ethics, women who contribute to inventing the future" (<http://www.unimi.it/lastatalenews/maria-pia-abbraccio-tecnovisionaria-2017-per-ricerca-scientifica>).
- September 2016, named, "in the name of His Majesty Felipe VI", **FOREIGN MEMBER OF THE ROYAL ACADEMY OF PHARMACY OF SPAIN**.
- March 2016, appointed **MEMBER OF EUROPEAN ACADEMY**.
- February 2014, appointed by the President Giorgio Napolitano **COMMANDER OF THE ORDER TO MERIT OF THE ITALIAN REPUBLIC** *motu proprio*, the highest honorary order of the Republic, for its scientific merits.
- 2006, nominated by ISI Web of Science / Thomson Reuters, as a **HIGHLY CITED SCIENTIST** (highly cited scientist) in Pharmacology and Toxicology, an international classification that selects the most influential scientists in all fields of research (less than 0.5 percent of all researchers).
- 1988, winner of the **ALDO CESTARI AWARD FOR RESEARCH IN PHARMACOLOGICAL SCIENCES** granted by the Italian Pharmacology Society as the best curriculum of the year among young pharmacologists.

Aware of the penal responsibilities in the case of false declarations, I declare that the contents of this curriculum correspond to the truth. I authorize the processing of my personal data pursuant to Legislative Decree 30 June 2003, n. 196 "Code regarding the protection of personal data" and the GDPR EU No. 679/16.

Milano, June 17, 2021

