

Curriculum Vitae – Anna Maria Colangelo

Associate Prof of Biochemistry, Dept. of Biotechnology & Biosciences, School of Science, University of Milano-Bicocca, Milano, ITALY

Education

2009 – Specialization in Pharmacology, School of Medicine, University of Milano

1988 – Professional Qualification in Biology

1987 – Master in Biology, School of Science, University of Bari

Academic Positions and Employments

2022-Present Associate Prof of Biochemistry, Dept. of Biotechnology & Biosciences, School of Science, University Milano-Bicocca, Milano, Italy.

2006-2022 Assist Prof of Biochemistry, Dept. of Biotechnology & Biosciences, School of Science, University Milano-Bicocca, Milano, Italy.

2000-Present Head of Lab. of Neuroscience “R. Levi-Montalcini” (2000-2006 Researcher of the Levi-Montalcini Foundation), Dept. Biotechnology & Biosciences, University Milano-Bicocca, Italy.

1998-1999 Assist Prof, Dept. of Cell Biology, Division of Neurobiology, Georgetown University Medical School, Washington DC, USA.

1996-1998 Senior Staff Fellow, Dept. of Cell Biology, Division of Neurobiology, Georgetown University Medical School, Washington DC, USA.

1996-1997 Visiting Research Scientist, Eukaryotic Transcriptional Regulation Group, National Cancer Institute-Frederick Cancer Research and Development Center, Frederick MD, USA.

1991-1995 Postdoctoral Fellow, Dept. of Cell Biology, Division of Neurobiology, Georgetown University School of Medicine, Washington DC, USA.

1989-1991 Research Fellow, Lab. of Cellular Neuropharmacology, Natl. Neurologic Institute “C. Besta”, Milano, Italy.

1987-1989 Research Fellow, Dept. of Biochemistry & Molecular Biology, Division of Neurochemistry, University of Bari, Bari, Italy.

Academic Honors, Awards, Achievements

- VQR 2015-19 – Selected products 4/4 out of 6 publications
- VQR 2011-14 – Selected products 2/2, both with the score “high” (0,7)
- VQR 2004-2010 – Selected products 2/2 with scores “excellent” and “good” (1 and 0,8)
- Interdepartmental Research Days, Georgetown University Medical Center, Research Award, Finalist (1° or 2° positions) in the years **1993, 1994, 1996**.

Academic duties and Professional Membership/Affiliations

- Member of the Disciplinary Board - Third Section – of University Milano-Bicocca (2021-2022)
- Member of the Scientific Committee on Animal Health and Animal Welfare (OPBA of University Milano-Bicocca) (since 2017 to Present)
- Milan Center for Neuroscience NeuroMI – Member of the Scientific Board (since 2014), and Coordinator of the Molecular and Cellular Neuroscience area (since 2020) <https://neuomi.it/research-area/molecular-and-cellular-neuroscience/>
- Inter-University Center for the Promotion of the 3Rs Principles in Teaching & Research (member)
- Centro Interdipartimentale per gli Studi di Genere ABCD (member)
- Nanobiotechnologies for Health Center (NanoMiB) (member)
- SYSBIO-ISBE.IT, scientific member and P.I. of the research Unit NEUDE (since 2012) <http://www.sysbio.it/who-we-are/people/>

- Associazione Levi-Montalcini, member of the Scientific Committee
- Society for Neuroscience - USA (member since 1996)
- Ordine Nazionale dei Biologi (member since 1988)

Teaching activities

AA 2012/13 – Present Neurobiochemistry (6 cfu), Master degree in Industrial Biotechnologies.

AA 2017/18 – Present “Glial cells in health and disease” (1 cfu) PhD Program in Neuroscience.

AA2013/14 – Present Member of the Committee for the PhD Program in Neuroscience (since cycle XXIX), School of Medicine, University of Milano-Bicocca.

AA 2002/03 – 2022/23 LTA-Biochemistry (laboratories, 3 cfu), Bachelor degree in Biotechnologies.

AA 2022/23 – 2022/23 LIB-Biochemistry (laboratories, 2 cfu), Bachelor degree in Biology.

AA2006/07 – AA2012/13 Member of the Committee, PhD Program in Industrial Biotechnologies (cycles XXIII - XXVIII), School of Science, University of Milano-Bicocca.

AA 2010/11 Biochemistry of Higher Eucaryotes (1 cfu - 8 hr), Bachelor degree in Biotechnologies.

AA 2001/2002 LTA-Biomolecular (laboratories, 3 cfu), Bachelor degree in Biotechnologies.

Synopsis of Research Activities

2000-Present

Oxidative stress and neuroinflammation as key players in neurodegenerative disorders. We are currently investigating the crosstalk between oxidative stress and neuroinflammation in mice models of Parkinson disease, while dissecting mechanisms of mitochondrial and metabolic reprogramming in neurons and astrocytes exposed to PD neurotoxins (6-OHDA or rotenone).

Plastics Neurotoxicity. We are investigating the impact of plastics on neuronal and astrocytic function.

Systems Biology approaches for the study of complex molecular processes. We are integrating our wet experimental studies with computer modeling of mitochondrial pathways to construct a dynamic model of mitochondria-ROS management that will help to identify new therapeutic targets for PD and other pathological conditions that involve oxidative stress/mitochondrial dysfunction, and their prospective use in Precision Medicine.

Neurotrophic and neuroprotective activity of Nerve Growth Factor (NGF). We are investigating mechanism of NGF activity in differentiation and neuroprotection, which seem to involve modulation of mitochondrial function/bioenergetics and metabolic reprogramming.

Development of NGF molecules (both rhNGF and NGF-like molecules) for clinical applications in neurodegenerative and neuroinflammatory disorders. In addition to the production of rhNGF and the NGF-like molecule BB14, these studies identified a novel anti-gliosis activity of NGF and BB14 in modulating reactive gliosis and synaptic homeostasis. Further studies are in progress for deep molecular and functional characterization of these molecules.

1991-99 – Role of neurotrophic factors in brain function and regeneration, in particular of Nerve Growth Factor (NGF) and its therapeutic potential in AD. Studies have contributed to current knowledge of NGF activity in neuronal survival/differentiation, and the transcriptional mechanisms underlying spatio-temporal and cell-specific pharmacological regulation of endogenous NGF expression in the brain. Part of these studies have been developed during a 1-year Sabbatical leave (1996-1997) at the Eukaryotic Transcriptional Regulation Group, National Cancer Institute-Frederick Cancer Research and Development Center, Frederick MD, USA.

1989-91 – 1) Mechanisms of neurodegeneration in dopaminergic neurons. 2) Biochemical and functional alterations in patients with Cluster headache or Amyotrophic Multiple Sclerosis.

1987-89 – Autoimmune aspects of Multiple Sclerosis.

Awarded Grants and Research support

- 2017-2019 CORBEL (H2020)** - Coordinated Research Infrastructures Building Enduring Life-science Services – PID2354 “Modelling ROS management and mitochondrial dysfunction in models of Parkinson disease”. (Principal Investigator)
- 2013-2017 MIUR – Technological National Cluster Life Science ALISEI – CTN01_00177_165430 IVASCOMAR** “Identification, validation and commercial development of novel diagnostic and prognostic biomarkers for complex diseases”. (Principal Investigator, Head of Research Unit UNIMIB-BTBS).
- FFABR 2017 MIUR – FFABBR_NAT** Annual individual Funds for basic research.
- 2013-2022 MIUR – SYSBIONET** - Italian Roadmap of European Strategy Forum on Research Infrastructures (ESFRI), Director: Prof L Alberghina. (Principal Investigator, Head di Research Unit UR-NEUDE “Systems Biology of neuroprotection in models of neurodegeneration”).
- 2009-2013 FINLOMBARDA SPA, REGIONE LOMBARDIA**, Fund for Institutional Agreements for R&S Programs – Network Enabled Drug Design (NEDD), Director: Prof F. Nicotra. (Participant).
- 2010-2013 FISM 2010** "The molecular basis for nutritional intervention in multiple sclerosis", P.I. Prof P. Riccio. (Participant).
- 2007-2013 MIUR FIRB – ITALBIONET** “Research Infrastructure for Systems Biology at the University of Milano Bicocca, hub of Italian network”, Director: Prof L Alberghina. (Participant).
- 2011-2012 Applied Research Project co-funded by Regione Lombardia.** “Molecular and functional characterization of the NGF-like molecule (BB14) for potential therapeutic applications in neurodegenerative and inflammatory diseases” (Principal Investigator).
- 2007-2009 PRIN 2007** – Prot. 2007AF3XH4_004 “Development of Nerve Growth Factor (NGF) as a drug for the treatment of ocular diseases and pathologies of the central nervous system”. (Principal Investigator, Head of Research Unit UNIMIB).
- 2006-2007 INGENIO-Regione Lombardia.** “Systems Biology of neuronal apoptosis”. (Head of the Research Unit).
- 2009 – 2022 Research Fellowships from Associazione Levi-Montalcini** for young graduate students and research fellows of the Lab of Neuroscience RLM (years 2001-2006, 2008-2009, 2012, 2014-2016, 2020-2022).

International and National collaborations

- Prof Hans Westerhoff, University of Amsterdam, ISBE-Light - Infrastructure for Systems Biology Europe
- Prof. Lilia Alberghina, SYSBIO/ISBE.IT Infrastructure for Systems Biology Europe
- Dr. Alexey Kolodkin, University of Luxemburg
- Prof. Michele Papa, Laboratory of Morphology of Neuronal Networks, Università di Campania “L Vanvitelli”, Napoli
- Prof Carlo Ferrarese, School of Medicine and Surgery, University of Milano-Bicocca
- Prof Rosa Maria Moresco, PET and Nuclear Medicine Unit, San Raffaele Scientific Institute, Milano
- Dr. Paola Bertolazzi (Istituto di Analisi dei Sistemi ed Informatica A. Ruberti, CNR, Roma)
- Profs. De Gioia, Vanoni, Grandori, Granucci, Labra (UNIMIB)
- Dr. Stefano Morara, Institute of Neuroscience/C.N.R. - Milano Unit
- Prof. Paolo Riccio (University of Basilicata, Potenza)
- Dr. Paolo Sarmientos (PRIMM srl, Milano)
- Prof. Rita Levi-Montalcini e Dr. Luigi Aloe (Istituto di Biologia Cellulare e Neurobiologia del CNR, Roma)

Editorial/Reviewer activity

- Reviewer of research projects for Ministry of University and Research (MIUR – FIRB 2013; MIUR Programma Giovani Ricercatori “Rita Levi Montalcini” 2017) and CARIPLO Foundation.
- Scientific expert of MIUR REPRISE, Basic Research.
- Guest Academic Editor for the MPDI journal “Antioxidants” - section: Health Outcomes of Antioxidants and Oxidative Stress, Special Issue “Oxidative Stress and Neuroinflammation in Neurological and Neurodegenerative Disorders
- Review Editor for Frontiers in Aging Neuroscience (since March 2014)
- Review activity for Military medical research (USA)
- Reviewer *ad hoc* for the following International journals peer-review: Scientific Reports (Nature publishing), Frontiers Cellular Neuroscience, Frontiers Molecular Neuroscience, Frontiers Behavioral Neuroscience, Antioxidants, Biofactors, Disease Markers, European Journal of Neurology, Journal of Neuroscience Research, Neuroscience Letters, Neural Plasticity, Neural Regeneration Research, Military Medical Research, Pharmacological Research, Food and Chemical Toxicology.

Organization or Participation to International Conferences

Scientific Board of the NeuroMI Annual Meetings in 2020, 2021, 2022.

Scientific Board of the Fifth NeuroMI International Meeting “Food for Brain: promoting health and preventing diseases”. Milano, November 20-223, 2019.

Co-President of the Fourth NeuroMI International Meeting “Brain stimulation and brain plasticity: from basic research to clinical practice”. Milano, November 21-23, 2018.

Corbel Operator meeting, Corbel (H2020) – *Oral communication* “Modelling ROS management and mitochondrial dysfunction in models of Parkinson disease”. Berlin, Jan 22-23, 2018.

SYSBIO Days, SYSBIO Centre of Systems biology, BTBS-UNIMIB – *Oral communication* “Modelling the tripartite synapse”. Milano, Dic 15-16, 2014.

SYSBIO Days, SYSBIO Centre of Systems biology, BTBS-UNIMIB – *Oral Communication* “BB14 and neurodegeneration”. Milano, Feb 25-28, 2013.

1st SYSBIO meeting, SYSBIO Centre of Systems biology, BTBS-UNIMIB – *Oral Communication* “Systems Biology for the Biology of a System”. Milano, Feb 25-28, 2012.

14th International Biotechnology Symposium IBS – *Oral communication* “Neuroprotection by Nerve Growth Factor (NGF) involves modulation of reactive gliosis and neuronal autophagy” (J BIOTECHNOL 2010, 150(Suppl 1), S98. DOI: 0.1016/j.jbiotec.2010.08.253). Rimini, Sept 14-18, 2010.

SysBioHealth Symposium 2009 – *Oral communication* “Role of endogenous NGF in modulation of neuro-glial network in the spinal cord of a rat model of neuropathic pain”. Milano, Nov. 25-27, 2009.

Organization of the Mini-symposium “Neurodegenerative diseases: molecular mechanisms and novel therapeutic strategies”, BTBS-UNIMIB, Milano, June 25 2008.

8th Int. Conference on Nerve Growth Factor and Related Neurotrophic Factors: From Laboratory to Clinic. “Molecular Evolution of Neurotrophins and Trk receptors”. Lyon, 25-29 May, 2006.

7th Natl. Conference of Biotechnology – *Oral Communication* “A new approach for production and purification of recombinant human Nerve Growth Factor in mammalian cells” (7° CNB-CIB Abstract book, S105). Catania, Italy, Sept 8-10, 2004.

7th International Conference on NGF and Related Molecules – *Oral Communication* “beta-adrenergic receptor-mediated activation of the NGF promoter”. Modena, 15-19 May 2002.

Annual ABL-Basic Research Program meeting, National Cancer Institute-Frederick Cancer Research and Development Center – *Oral Communication* “Transcriptional regulation of Nerve Growth Factor gene expression by CCAAT/Enhancer Binding Protein δ ”. Frederick MD, USA, October 1997.

Annual Interdepartmental Research Days 1996, Georgetown University School of Medicine – *Oral Communication* “Transcription factors involved in the regulation of Nerve Growth Factor expression in glial cells”. Washington DC, USA, October 1996.

Annual Interdepartmental Research Days 1994, Georgetown University School of Medicine – *Oral Communication* “Intracellular Ca⁺⁺ as a second messenger for NGF responsiveness”. Washington DC, USA, October 1994.

Annual Interdepartmental Research Days 1993, Georgetown University School of Medicine – *Oral Communication* “Induction of NGF responsiveness by trkA proto-oncogene expression in C6-2B glioma cells”. Washington DC, USA, October 1993.

Patents

Alberghina L, Colangelo AM, Martegani E. (2008). Method for the production of biologically active rhNGF. USP 2008/0214464A1 Published on Sept. 4, 2008.

Books e Book Chapters

1. Alberghina L, Colangelo AM, Tonini F. ALBERGHINA. La Biochimica (Fondamenti e nuove frontiere). Ed. A. MONDADORI SCUOLA 2014. ISBN 978-88-247-4637-3
2. Colangelo AM and Alberghina L (2010). Apoptotic Mechanisms Involved in Neurological Disorders. In: Modern Insights Into Disease From Molecules to Man: Apoptosis (Preedy VR, Ed.) Science Publishers Inc, pp. 437-455. Print ISBN: 978-1-57808-583-5; eBook ISBN: 978-1-4398-4543-1; DOI: 10.1201/9781439845431
3. Mocchetti I and Colangelo AM (2001). Transcriptional Regulation of NGF in the Central Nervous System. In: Neurobiology of the Neurotrophins (Mocchetti I, Ed.), F.P. Graham Publishing Co., pp. 631-654. ISBN-10 1-929675-01-1; ISBN-13 978-1-929675-01-2

Peer Reviewed Articles (*corresponding author; § equal contribution)

(N° publications 49; Scopus H-index 24; N° citations 1597)

<http://www.scopus.com/inward/authorDetails.url?authorID=6603763210&partnerID=MN8TOARS>

<https://orcid.org/0000-0002-7971-4289>

1. Bonanomi M, Salmistraro N, Porro D, Pinsino A, Colangelo AM, Gaglio D (2022). Polystyrene micro and nano-particles induce metabolic rewiring in normal human colon cells: A risk factor for human health. Chemosphere. 303(Pt 1):134947. doi: 10.1016/j.chemosphere.2022.134947.
2. De Luca C, Virtuoso A, Cerasuolo M, Gargano F, Colangelo AM, Lavitrano M, Cirillo G, Papa M (2022). Matrix metalloproteinases, purinergic signaling, and epigenetics: hubs in the spinal neuroglial network following peripheral nerve injury. Histochem Cell Biol. 157(5):557-567. doi:10.1007/s00418-022-02082-4.

3. Virtuoso A, **Colangelo AM**, Maggio N, Fennig U, Weinberg N, Papa M, De Luca C (2021). The Spatiotemporal Coupling: Regional Energy Failure and Aberrant Proteins in Neurodegenerative Diseases. *Int. J. Mol. Sci.* 22, 11304. <https://doi.org/10.3390/ijms222111304>
4. Bonanomi M, Salmistraro N, Fiscon G, Conte F, Paci P, Bravatà V, Forte GI, Volpari T, Scorza M, Mastroianni F, D'Errico S, Avolio E, Piccialli G, **Colangelo AM**, Vanoni M, Gaglio D and Alberghina L (2021). Transcriptomics and Metabolomics Integration Reveals Redox-Dependent Metabolic Rewiring in Breast Cancer Cells. *Cancers* 13(20), 5058. <https://doi.org/10.3390/cancers13205058>.
5. Virtuoso A[§], **Colangelo AM**[§], Korai SA, Izzo S, Todisco A, Giovannoni R, Lavitrano M, Papa M, Cirillo G (2021). Inhibition of plasminogen/plasmin system retrieves endogenous nerve growth factor and adaptive spinal synaptic plasticity following peripheral nerve injury. *Neurochem Int.* 148:105113. doi: 10.1016/j.neuint.2021.105113.
6. Virtuoso A, De Luca C, Gargano F, **Colangelo AM***, Papa M (2020). The Spinal Extracellular Matrix Modulates a Multi-level Protein Net and Epigenetic Inducers Following Peripheral Nerve Injury. *Neuroscience.* 451:216-225. doi: 10.1016/j.neuroscience.2020.09.051.
7. Kolodkin A[§], Sharma RP[§], **Colangelo AM**[§], Ignatenko A, Martorana F, Jennen D, Briedé JJ, Brady N, Barberis M, Mondeel TDGA, Papa M, Kumar V, Peters B, Skupin A, Alberghina L, Balling R, Westerhoff HV[§] (2020). ROS networks: designs, aging, Parkinson's disease and precision therapies. *NPJ Syst Biol Appl.* 6(1):34. doi: 10.1038/s41540-020-00150-w.
8. De Luca C, Virtuoso A, Maggio N, Izzo S, Papa M, **Colangelo AM** (2020). Roadmap for Stroke: Challenging the Role of the Neuronal Extracellular Matrix. *Int J Mol Sci.* 21(20):7554. doi: 10.3390/ijms21207554.
9. Gaglio D, Bonanomi M, Valtorta S, Bharat R, Ripamonti M, Conte F, Fiscon G, Righi N, Napodano E, Papa F, Raccagni I, Parker SJ, Cifola I, Camboni T, Paci P, **Colangelo AM**, Vanoni M, Metallo CM, Moresco RM, Alberghina L (2020). Disruption of redox homeostasis for combinatorial drug efficacy in K-Ras tumors as revealed by metabolic connectivity profiling. *Cancer Metab.* 8:22. doi: 10.1186/s40170-020-00227-4. eCollection 2020.
10. De Luca C, **Colangelo AM***, Virtuoso A, Alberghina L, Papa M (2020). Neurons, Glia, Extracellular Matrix and Neurovascular Unit: A Systems Biology Approach to the Complexity of Synaptic Plasticity in Health and Disease. *Int J Mol Sci.* 21(4):1539. doi: 10.3390/ijms21041539.
11. Martorana F, Foti M, Virtuoso A, Gaglio D, Aprea F, Latronico T, Rossano R, Riccio P, Papa M, Alberghina L, **Colangelo AM*** (2019). Differential Modulation of NF-κB in Neurons and Astrocytes Underlies Neuroprotection and Antigliosis Activity of Natural Antioxidant Molecules. *Oxid Med Cell Longev.* 2019:8056904. doi: 10.1155/2019/8056904. eCollection 2019.
12. **Colangelo AM***, Cirillo G, Alberghina L, Papa M, Westerhoff HV (2019). Neural plasticity and adult neurogenesis: the deep biology perspective. *Neural Regen Res.* 14(2):201-205. doi: 10.4103/1673-5374.244775.
13. De Luca C[§], **Colangelo AM**^{§*}, Alberghina L, Papa M (2018). Neuro-Immune Hemostasis: Homeostasis and Diseases in the Central Nervous System. *Front Cell Neurosci.* 12:459. doi: 10.3389/fncel.2018.00459. eCollection 2018.
14. Martorana F, Gaglio D, Bianco MR, Aprea F, Virtuoso A, Bonanomi M, Alberghina L, Papa M, **Colangelo AM*** (2018). Differentiation by nerve growth factor (NGF) involves mechanisms of crosstalk between energy homeostasis and mitochondrial remodeling. *Cell Death Dis.* 9(3):391. doi: 10.1038/s41419-018-0429-9.
15. Gaglio D, Valtorta S, Ripamonti M, Bonanomi M, Damiani C, Todde S, Negri AS, Sanvito F, Mastroianni F, Di Campli A, Turacchio G, Di Grigoli G, Belloli S, Luini A, Gilardi MC, **Colangelo AM**, Alberghina L, Moresco RM (2016). Divergent in vitro/in vivo responses to drug treatments of highly aggressive NIH-Ras cancer cells: a PET imaging and metabolomics-mass-spectrometry study. *Oncotarget.* 7(32):52017-52031. doi: 10.18632/oncotarget.10470.
16. Sala G, Marinig D, Riva C, Arosio A, Stefanoni G, Brighina L, Formenti M, Alberghina L, **Colangelo AM**, Ferrarese C (2016). Rotenone down-regulates HSPA8/hsc70 chaperone protein in vitro: A new possible toxic mechanism contributing to Parkinson's disease. *NeuroToxicology.* 54:161-9. doi: 10.1016/j.neuro.2016.04.018.

17. Calderone A, Formenti M, Aprea F, Papa M, Alberghina L, **Colangelo AM***, Bertolazzi P (2016). Comparing Alzheimer's and Parkinson's diseases networks using graph communities structure. *BMC Syst Biol.* 10:25. doi: 10.1186/s12918-016-0270-7.
18. Cirillo G, **Colangelo AM**, De Luca C, Savarese L, Barillari MR, Alberghina L, Papa M (2016). Modulation of Matrix Metalloproteinases Activity in the Ventral Horn of the Spinal Cord Re-stores Neuroglial Synaptic Homeostasis and Neurotrophic Support following Peripheral Nerve Injury. *PLoS One.* 11(3):e0152750. doi: 10.1371/journal.pone.0152750. eCollection 2016.
19. De Luca C, Savarese L, **Colangelo AM**, Bianco MR, Cirillo G, Alberghina L, Papa M (2016). Astrocytes and Microglia-Mediated Immune Response in Maladaptive Plasticity is Differently Modulated by NGF in the Ventral Horn of the Spinal Cord Following Peripheral Nerve Injury. *Cell Mol Neurobiol.* 36(1):37-46. doi: 10.1007/s10571-015-0218-2.
20. Cirillo G⁵, **Colangelo AM**⁵, Berbenni M, Ippolito VM, De Luca C, Verdesca F, Savarese L, Alberghina L, Maggio N, Papa M (2015). Purinergic Modulation of Spinal Neuroglial Maladaptive Plasticity Following Peripheral Nerve Injury. *Mol Neurobiol.* 52(3):1440-57. doi: 10.1007/s12035-014-8943-y.
21. Morara S, **Colangelo AM**, Provini L (2015). Microglia-Induced Maladaptive Plasticity Can Be Modulated by Neuropeptides In Vivo. *Neural Plast.* 2015:135342. doi: 10.1155/2015/135342.
22. Amara F, Berbenni M, Fragni M, Leoni G, Viggiani S, Ippolito VM, Larocca M, Rossano R, Alberghina L, Riccio P, **Colangelo AM*** (2015). Neuroprotection by Cocktails of Dietary Antioxidants under Conditions of Nerve Growth Factor Deprivation. *Oxid Med Cell Longev.* 2015:217258. doi: 10.1155/2015/217258.
23. **Colangelo AM***, Alberghina L, Papa M (2014). Astroglialosis as a therapeutic target for neurodegenerative diseases. *Neurosci Lett.* 565:59-64. doi: 10.1016/j.neulet.2014.01.014.
24. Marcello L, Cavaliere C, **Colangelo AM**, Bianco MR, Cirillo G, Alberghina L, Papa M (2013). Remodelling of supraspinal neuroglial network in neuropathic pain is featured by a reactive gliosis of the nociceptive amygdala. *Eur J Pain.* 17(6):799-810. doi: 10.1002/j.1532-2149.2012.00255.x.
25. **Colangelo AM***, Cirillo G, Lavitrano ML, Alberghina L, Papa M (2012). Targeting reactive astroglialosis by novel biotechnological strategies. *Biotechnol Adv.* 30(1):261-71. doi: 10.1016/j.biotechadv.2011.06.016.
26. Cirillo G, **Colangelo AM**, Bianco MR, Cavaliere C, Zaccaro L, Sarmientos P, Alberghina L, Papa M (2012). BB14, a Nerve Growth Factor (NGF)-like peptide shown to be effective in reducing reactive astroglialosis and restoring synaptic homeostasis in a rat model of peripheral nerve injury. *Biotechnol Adv.* 30(1):223-32. doi: 10.1016/j.biotechadv.2011.05.008.
27. Bianco MR, Berbenni M, Amara F, Viggiani S, Fragni M, Galimberti V, Colombo D, Cirillo G, Papa M, Alberghina L, **Colangelo AM*** (2011). Cross-talk between cell cycle induction and mitochondrial dysfunction during oxidative stress and nerve growth factor withdrawal in differentiated PC12 cells. *J Neurosci Res.* 89(8):1302-15. doi: 10.1002/jnr.22665.
28. Cirillo G, Bianco MR, **Colangelo AM**, Cavaliere C, Daniele de L, Zaccaro L, Alberghina L, Papa M (2011). Reactive astrocytosis-induced perturbation of synaptic homeostasis is restored by nerve growth factor. *Neurobiol Dis.* 41(3):630-9. doi: 10.1016/j.nbd.2010.11.012.
29. Cirillo G, Cavaliere C, Bianco MR, De Simone A, **Colangelo AM**, Sellitti S, Alberghina L, Papa M (2010). Intrathecal NGF administration reduces reactive astrocytosis and changes neurotrophin receptors expression pattern in a rat model of neuropathic pain. *Cell Mol Neurobiol.* 30(1):51-62. doi: 10.1007/s10571-009-9430-2.
30. **Colangelo AM**, Bianco MR, Vitagliano L, Cavaliere C, Cirillo G, De Gioia L, Diana D, Colombo D, Redaelli C, Zaccaro L, Morelli G, Papa M, Sarmientos P, Alberghina L, Martegani E (2008). A new nerve growth factor-mimetic peptide active on neuropathic pain in rats. *J Neurosci.* 28(11):2698-709. doi: 10.1523/JNEUROSCI.5201-07.2008.
31. Lanave C, **Colangelo AM**, Saccone C, Alberghina L (2007). Molecular evolution of the neurotrophin family members and their Trk receptors. *Gene.* 394(1-2):1-12. DOI: 10.1016/j.gene.2007.01.021.
32. Alberghina L, **Colangelo AM** (2006). The modular systems biology approach to investigate the control of apoptosis in Alzheimer's disease neurodegeneration. *BMC Neurosci* 7 Suppl 1:S2. DOI: 10.1186/1471-2202-7-S1-S2
33. McCauslin CS, Heath V, **Colangelo AM**, Malik R, Lee S, Mallei A, Mocchetti I, Johnson PF (2006). CAAT/enhancer-binding protein delta and cAMP-response element-binding protein mediate inducible

- expression of the nerve growth factor gene in the central nervous system. *J Biol Chem* 281(26):17681-8. DOI: 10.1074/jbc.M600207200
34. **Colangelo AM**, Finotti N, Ceriani M, Alberghina L, Martegani E, Aloe L, Lenzi L, Levi-Montalcini R (2005). Recombinant human nerve growth factor with a marked activity in vitro and in vivo. *Proc Natl Acad Sci USA* 102(51):18658-63. DOI: 10.1073/pnas.0508734102
 35. **Colangelo AM**, Mallei A, Johnson PF, Mocchetti I (2004). Synergistic effect of dexamethasone and beta-adrenergic receptor agonists on the nerve growth factor gene transcription. *Brain Res Mol Brain Res* 124(2):97-104. DOI: 10.1016/j.molbrainres.2004.01.011
 36. Pflug BR, **Colangelo AM**, Tornatore C, Mocchetti I (2001). TrkA induces differentiation but not apoptosis in C6-2B glioma cells. *J Neurosci Res*. 64(6):636-45. DOI: 10.1002/jnr.1117
 37. Bachis A, **Colangelo AM**, Vicini S, Doe PP, De Bernardi MA, Brooker G, Mocchetti I (2001). Interleukin-10 prevents glutamate-mediated cerebellar granule cell death by blocking caspase-3-like activity. *J Neurosci* 21(9):3104-12. DOI: <https://doi.org/10.1523/JNEUROSCI.21-09-03104.2001>
 38. **Colangelo AM**, Johnson PF, Mocchetti I (1998). beta-adrenergic receptor-induced activation of nerve growth factor gene transcription in rat cerebral cortex involves CCAAT/enhancer-binding protein delta. *Proc Natl Acad Sci USA* 95(18):10920-5. DOI: 10.1073/pnas.95.18.10920
 39. **Colangelo AM**, Follesa P, Mocchetti I (1998). Differential induction of nerve growth factor and basic fibroblast growth factor mRNA in neonatal and aged rat brain. *Brain Res Mol Brain Res* 53(1-2):218-25. DOI: 10.1016/S0169-328X(97)00296-9
 40. Mocchetti I, Rabin SJ, **Colangelo AM**, Whittemore SR, Wrathall JR (1996). Increased basic fibroblast growth factor expression following contusive spinal cord injury. *Exp Neurol* 141(1):154-64. DOI: 10.1006/exnr.1996.0149
 41. De Bernardi MA, Rabins SJ, **Colangelo AM**, Brooker G, Mocchetti I (1996). TrkA mediates the nerve growth factor-induced intracellular calcium accumulation. *J Biol Chem* 271(11):6092-8. doi: 10.1074/jbc.271.11.6092
 42. Mocchetti I, Spiga G, Hayes VY, Isackson PJ, **Colangelo A** (1996). Glucocorticoids differentially increase nerve growth factor and basic fibroblast growth factor expression in the rat brain. *J Neurosci* 16(6):2141-8. DOI: <https://doi.org/10.1523/JNEUROSCI.16-06-02141.1996>
 43. **Colangelo AM**, Pani L, Mocchetti I (1996). Correlation between increased AP-1/NGF binding activity and induction of nerve growth factor transcription by multiple signal transduction pathways in C6-2B glioma cells. *Brain Res Mol Brain Res* 35(1-2):1-10. DOI: 10.1016/0169-328X(95)00171-N
 44. Testa D, **Colangelo AM**, Fetoni V, Parati E (1995). Decreased CSF levels of homovanillic acid in ALS patients. *Eur J Neurol*. 2(1):27-9. DOI: 10.1111/j.1468-1331.1995.tb00089.x
 45. Villa I, **Colangelo AM**, Vescovi AL, Gritti A, Schinelli S, Pagani F, Guidobono F (1994). Differential effects of CGRP on adenylyl cyclase in adult and embryonic rat brain. *Neuroreport* 5(18):2489-92. DOI: 10.1097/00001756-199412000-0 Fondo Integrativo Speciale per la Ricerca (CU 03.00145) to L.A.,0021
 46. **Colangelo AM**, Fink DW, Rabin SJ, Mocchetti I (1994). Induction of nerve growth factor responsiveness in C6-2B glioma cells by expression of trkA proto-oncogene. *Glia* 12(2):117-27. DOI: 10.1002/glia.440120205
 47. Grazi L, Salmaggi A, Dufour A, Ariano C, **Colangelo AM**, Parati E, Lazzaroni M, Nespolo A, Bordin G, Castellazzi C (1993). Physical effort-induced changes in immune parameters. *Int J Neurosci* 68(1-2):133-40.
 48. Leone M, Zappacosta BM, Valentini S, **Colangelo AM**, Bussone G (1991). The insulin tolerance test and the ovine corticotrophin-releasing hormone test in episodic cluster headache. *Cephalalgia* 11(6):269-74. DOI: 10.1046/j.1468-2982.1991.1106269.x
 49. Riccio P, Jirillo E, Bobba A, Munno I, **Colangelo AM** (1990). T lymphocytes possess receptors for brain myelin small protein. *J Clin Lab Anal* 4(1):2-4. DOI: 10.1002/jcla.1860040103.

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