

Curriculum Vitae

Professor Cinzia Costa, MD, Ph.D.

Education:

Medical Degree, Summa cum Laude, University of Messina, Italy. Degree awarded in July 1997.

Dissertation: "Obstructive Sleep Apnea Syndrome: correlation between neuropsychological functions, electrophysiological data, and oxyhemoglobin saturation".

Specialization in Neurology, Summa cum Laude, University of Messina, Italy. Degree awarded in October 2002. Dissertation: "Co-activation of GABAA and GABAB receptor results in neuroprotection during in vitro ischemia". Advisor: Professor Francesco Pisani.

PhD in Neuroscience, degree awarded in October 2006, University of Rome "Tor Vergata", Italy.

Dissertation: "Antiepileptic Drugs: molecular mechanisms and neuroprotection against in vitro ischemia".

Advisor: Professor Paolo Calabresi.

Second Level Master's Degree in Epileptology, 2006-2008, from the University of Ferrara - Istituto Neurologico C. Besta - Milano, International School of Neurological Sciences - Venezia.

Second Level Master's Degree in Headache, 2013-2014, from the University of Sapienza-Roma.

Positions:

Fellowship in Neuroscience for the project "Synaptic activity of striatum under physiologic and pathological condition", Neurology Clinic, Department of Neuroscience, University of Rome "Tor Vergata", Italy (2002-2003).

Fellowship in Neuroscience for the project "Hippocampal plasticity and Epilepsy", Department of Neuroscience, University of Wisconsin-Madison, USA (2004-2005). Advisor: Professor Thomas P. Sutula.

Post-doc Fellow at the Department of Neuroscience, University of Perugia, for the project "Cellular mechanisms of neuroprotection in neurological diseases" (2005-2006). Tutor: Professor Paolo Calabresi.

Assistant Professor at the University of Perugia-Italy, Department of Medicine and Surgery (2007-2022).

Associate Professor at the University of Perugia-Italy, Department of Medicine and Surgery (2022-present).

Head of the Medical and Experimental Epilepsy Center at the Neurological Clinic S.M. Misericordia Hospital, Perugia - Department of Medicine and Surgery, University of Perugia, Italy (2007-present).

Head of the Experimental Epileptology Commission (LICE 2021-2024).

Professional Experience:

September 2001 - June 2004: Worked at the Department of Neuroscience, University of Rome "Tor Vergata", under the supervision of Professor Paolo Calabresi. During this period, I received training in electrophysiological techniques, including extra- and intra-cellular recordings, in corticostriatal slice preparations. The focus of my study was the characterization of striatal activity under both physiological

and pathological conditions, such as ischemia and experimental models of Parkinson's disease. Additionally, I contributed to research on the neuroprotective effects of various Antiepileptic Drugs (AEDs), including lamotrigine, remacemide, tiagabine, and vigabatrin, on striatal neurons.

University of Wisconsin-Madison, USA (Under Professor Sutula): Gained experience in electrophysiological techniques for hippocampal slice preparations in the kindling model. Concurrently, I continued my clinical work at the Department of Neurology, Medical Science Center, University of Wisconsin during 2004-2005.

Pre-Clinical Research (Present):

Electrophysiological Studies in CNS Experimental Models: Focused on cellular and synaptic mechanisms of antiseizure drugs in models of CNS ischemia, both in vitro and in vivo. This includes studying synaptic activity in the striatum and hippocampus (around CA1 and dentate gyrus) under physiological and pathological conditions, such as models of epilepsy and Alzheimer's Disease. These studies utilize both intracellular and extracellular recording methods in rat brain tissue maintained in vitro.

Autoimmune Encephalitis and Epileptogenesis: Investigating the role of auto-antibodies (auto-Abs) in altered brain excitability that contributes to epileptogenesis in autoimmune encephalitis.

Amyloidosis and Pro-Epileptogenic Effects: Examining the pro-epileptogenic effects of amyloid-beta (A β) on hippocampal slices in models of amyloidosis.

Exploring new gene therapy approaches through electrophysiological recordings and characterization in genetic models of epilepsy, aiming to advance our understanding and treatment of these conditions.

Clinical Research (Present):

Late Onset Epilepsy of Unknown Origin (LOEU): Investigating mechanisms in patients with LOEU, including neuropsychological assessments, EEG analysis, and biomarker evaluations.

Effectiveness of Anti-Seizure Medications (ASMs): Studying the impact of various ASMs in patients with post-stroke epilepsy and Alzheimer's disease, evaluating their efficacy and safety.

Epilepsy in Neuro-Oncology: Exploring the relationship between epilepsy and neurological oncology.

Epilepsy and Autoimmune Encephalitis: Focusing on patients diagnosed with both epilepsy and autoimmune encephalitis to understand the interplay between these conditions.

Teaching and Supervision:

Supervised over 90 theses in Specialization in Neurology and Medicine, focusing on both clinical and experimental epilepsy.

Courses within the School of Specialization in Neurology, University of Perugia:

Neurophysiopathology.

Acute stroke management and other neurological emergencies.

Epilepsy and electroencephalographic techniques.

School of Specialization in Radiotherapy and Radiodiagnostics: Neurology.

School of Specialization in Clinical Biochemistry (2009/2010):

Clinical Biochemistry of neurological pathologies.

Lecturer in the PhD Program in Neuroscience (2009-2015); PhD in Clinical and Molecular Medicine (2013-present). University of Perugia.

Since 2008, Lecturer in Experimental Neurology for the Master's Degree Course in Medical, Veterinary, and Forensic Biotechnological Sciences. University of Perugia.

Since 2017, Lead Lecturer for the Molecular Diagnostics in Neuropathology course (International Course). Teaching Module: Neurology.

Since 2018, Lecturer in Neurology for the Master's Degree Course in Dentistry and Dental Prosthetics.

Since 2018, Lecturer in Neurology for the Master's Degree Course in Nursing and Obstetric Sciences.

Organizer and Member of the Scientific Committee for the following Congresses:

2013: "Nuove strategie terapeutiche nella gestione del paziente con epilessia". Perugia;

2014: "Le Neuroscienze in Umbria: dalle evidenze sperimentali alle nuove implicazioni cliniche" Perugia;

2014 "Gestione delle crisi farmaco-resistenti e dello stato epilettico: approccio multidisciplinare" Perugia;

2015: "Updates pre-clinici e clinici nella gestione delle epilessie" Perugia;

2017: "Memoria: dai sistemi neuronali alle disfunzioni cliniche" Perugia;

2019: "Updates nelle epilessie: dalla diagnosi alle terapie ai risvolti socio-assistenziali" Perugia;

2019; 18th National Congress of the Italian Society for Neuroscience – SINS - Perugia

2021: "Le epilessie curabili dall'età neonatale all'età anziana: possibili target terapeutici per una medicina di precisione" Firenze.

National and International Collaborations:

International League Against Epilepsy (ILAE) Task-Force: Participating in the "Epilepsy in the Elderly" task-force, focusing on advancing research and treatment for epilepsy in older populations;

Epilepsy Center - Besta, Milan, Italy: Collaborating on various research initiatives and clinical studies, particularly focusing on late-onset epilepsies and autoimmune epilepsies;

Department of Physiology and Pharmacology "Vittorio Erspamer", Sapienza University of Rome, Italy: Engaged in joint research projects in the fields of physiology and pharmacology;

Regina Elena National Cancer Institute IRCCS IFO, Rome, Italy: Working with the Center for Tumor-Related Epilepsy, UOSD Neurology, focusing on the intersection of epilepsy and oncology;

Sleep Medicine Centre, Department of Systems Medicine, University of Rome "Tor Vergata," Rome, Italy: Collaborating on research in sleep medicine and its relationship to neurological disorders;

International Consortium of Clinics for Elderly with Epilepsy (ICCEE): Active member, focusing on clinical and research aspects of epilepsy in the elderly;

International Post-Stroke Epilepsy Research Consortium (IPSERC): Active member, contributing to research on post-stroke epilepsy;

Laboratory of Neurology, IIS-Jimenez Diaz Foundation, Biomedical Research Networking Center on Rare Diseases (CIBERER), 28029 Madrid, Spain (Prof. Jose M Serratos): Partnering in research related to Lafora disease and gene therapy.

Editorial Activity:

Reviewer Roles: I have served as a reviewer for several leading journals in the field of Neuroscience, including Brain, New England Journal of Medicine, Journal of American Medical Association (JAMA), and Clinical Neuroscience.

Editorial Board Memberships: Neurochemical Research (2014-2019); Journal Headache and Pain (2015-2018); Biology (2019-present)

Associate Editor:

Board of Epilepsy, Frontiers in Neurology (From 2021); Journal of Alzheimer's Disease (From 2021)

Guest Editor (2021): Frontiers in Neurology - Section Epilepsy, Research Topic Title: "Epilepsy in Older Adults: From Physiopathology to Improvements in Diagnosis and Management."

Honors and Prizes:

Culture Award, 32nd National Congress Lega Italiana contro l'Epilessia (LICE), Sorrento, May 2009.

Reviewer for the National Research Evaluation (VQR 2004-2010).

Best Scientific Contribution Award, 34th National Congress Lega Italiana contro l'Epilessia (LICE), Catania, April 2011.

Special mention by the University of Perugia (2016) for the work titled "Mechanisms underlying the impairment of hippocampal long-term potentiation and memory in experimental Parkinson's disease. Costa et al., Brain 2012."

Accredited as a scientific expert at the MIUR (Ministry for Education, University and Research) for the evaluation of Italian National Research Grants (Future Research, 2013).

Achievement of the National Scientific Qualification for Full Professor in Neurology.

Research and Innovation Award 2022" for excellence in research quality and scientific project planning in the field of epilepsies with neurodegeneration and gene therapy. Mauro Baschirotto Rare Diseases Association.

Grants:

Drug discovery and repurposing to Find a treatment for Lafora Disease (DEFEAT-LD) Project Code: PNRR-MR1-2022-12376430 Research Collaborators; International Award on Gene Therapy and Advanced Therapies XI Edition- 2023 "Mauro Baschirotto" Foundation for Rare Diseases. Ricerca di base – Progetti di Ricerca di Base Anno 2020 (Fondo di Funzionamento per la Ricerca Dipartimentale Perugia) PIFondazione Cassa di Risparmio di Perugia – Bando Ricerca di Base – 2010 (PI); Secured grants from the Italian Minister of Health, Progetti di ricerca giovani ricercatori, Ricerca finalizzata 2010 (PI).

Principal Investigator in international multicenter studies evaluating the efficacy and tolerability of new antiepileptic drugs.

Investigator in several Phase III studies in the field of Epilepsy.

Scientific Societies:

Member of the Italian Society of Neurology (SIN).

Member of the Italian League Against Epilepsy (LICE).

Regional Councilor for LICE in the Umbria Region (2021-2024).

Member of the International League Against Epilepsy (ILAE).

Member of the Italian Society for the Study of Headaches (SISC since 2012). Served as a Councilor from 2013 to 2016.

I have authored over 128 papers published in leading international journals.

Official H index: 38; Citations 4803; Source: Scopus. Scopus Author Id: 7201473661 ORCID ID: 0000-0002-4862-4221 Web of Science ResearcherID: K-8485-2016.

Perugia, 03.01.2024

