CURRICULUM VITAE

PERSONAL DETAILS

Name: Laura Cristina Ceafalan
Researcher identifiers: ORCID 0000-0003-4952-9186 | ResearcherID G-5870-2016
Field of expertise: Cellular and Molecular Biology, Histology

EDUCATION AND KEY QUALIFICATIONS

PhD in Medicine (2010), Carol Davila University of Medicine and Pharmacy, Bucharest.
MD (2002), Carol Davila University of Medicine and Pharmacy, Bucharest.
Medical Specialist in Laboratory Medicine (2010).
Postdoctoral researcher (2014–2015), INCD Victor Babeș.

CURRENT AND PREVIOUS POSITIONS

Current positions:
• Associate Professor, Carol Davila University of Medicine and Pharmacy (2022–present)
• Senior Researcher (CS I), INCD Victor Babeș (2020–present)
• Head of Cellular Biology, Neuroscience and Experimental Myology Laboratory, INCD Victor Babeș

Previous positions:
• Assistant Professor / Lecturer, UMF Carol Davila (2003–2022)
• Researcher CS II / CS III, INCD Victor Babeș (2010–2020)

RESEARCH ACHIEVEMENTS

I have been involved in over 40 competitive research projects, acting as project director, project responsible, work-package coordinator or team member. I have coordinated multidisciplinary teams and supervised students and young researchers, contributing to capacity building and knowledge transfer.

My research activity spans more than 20 years and focuses on cellular and molecular mechanisms governing tissue organization, regeneration and disease. A core contribution of my work lies in the characterization of telocytes as key regulators of stem cell niches and intercellular communication in multiple organs.

Using advanced imaging techniques, including electron microscopy, electron tomography, confocal microscopy, and super-resolution microscopy, my studies have provided original insights into heterocellular interactions in skeletal muscle, the placenta, the nervous system, and vascular tissues. These findings contributed to paradigm shifts regarding tissue microenvironments and regenerative biology.
A more recent but consistent component of my research activity is dedicated to the neurosciences, with an emphasis on the cellular and molecular mechanisms underlying neurodegenerative diseases, neurovascular dysfunction, and neuro–muscular interactions. My work addresses both fundamental and translational aspects of neuroscience, integrating ultrastructural pathology, molecular biology and advanced imaging technologies.

One of my main contributions in neuroscience concerns the study of brain barriers, in particular the blood–brain barrier (BBB) and blood–nerve barrier, in ageing and neurodegenerative disorders. Using electron microscopy, immunohistochemistry and molecular profiling, I characterized ultrastructural alterations of basement membranes, tight junctions and extracellular matrix components in experimental models and human pathology. These studies demonstrated that barrier dysfunction represents an early event in neurodegeneration, preceding overt neuronal loss and clinical manifestation, and highlighted potential biomarkers for early diagnosis and disease monitoring.

Another important research direction is the investigation of the neurovascular unit, focusing on the interactions between endothelial cells, pericytes, glial cells, immune cells and telocytes. My work provided original evidence on heterocellular molecular contacts and paracrine signaling mechanisms that regulate vascular integrity, neuroinflammation and neural homeostasis. In this context, I contributed to understanding extracellular vesicles as key mediators of intercellular communication in the nervous system, with relevance to neurodegenerative and neuroinflammatory conditions.

I also explored the role of lipid metabolism and scavenger receptors, particularly CD36, in neurodegeneration and ageing. My studies linked altered lipid transport and metabolism to blood–brain barrier impairment, oxidative stress and neuronal vulnerability, supporting the concept that metabolic dysregulation plays a central role in neurodegenerative disease progression.

In parallel, my research addressed neuro–muscular crosstalk, highlighting shared cellular and molecular mechanisms between neurodegenerative disorders and skeletal muscle pathology. By investigating macrophage–muscle progenitor interactions, stem cell niche remodelling, and regenerative responses, my work contributes to a better understanding of neuromuscular diseases and sarcopenia associated with ageing and neurodegeneration.

These neuroscience-oriented research activities have been supported by competitive national and international funding and resulted in publications in high-impact, peer-reviewed journals. Collectively, they demonstrate my capacity to develop and lead interdisciplinary research at the interface between cellular biology and neurosciences, with clear translational relevance for diagnosis and therapy.

PUBLICATIONS AND SCIENTIFIC IMPACT

My scientific output includes:
• over 50 articles published in ISI-indexed journals,
• book chapters published by Springer, Elsevier and IntechOpen,
• contributions to national and international reference textbooks.

These works have generated over 3,500 citations (Google Scholar), with an h-index of 28, reflecting sustained international visibility and impact.

PEER RECOGNITION AND SCIENTIFIC SERVICE

My work has been recognized through multiple national and international awards, including repeated UEFISCDI prizes for excellence in research. I have been invited as lecturer and speaker at international conferences and workshops.

I actively contribute to the scientific community as reviewer for ISI-ranked journals and as member of editorial boards. I am affiliated with professional societies in cellular biology, microscopy and neuroscience.

ADDITIONAL CONTRIBUTIONS

Beyond research, I am actively involved in academic teaching, curriculum development and student mentoring. I have contributed to the modernization of histology education through digital microscopy and innovative teaching tools.

I have coordinated laboratory development projects and contributed to research infrastructure modernization at institutional level.