

Carla Emiliani
Curriculum vitae

Education:

Graduated in Pharmaceutical Chemistry and Technology, University of Perugia.

Scholarships and grants for improvement:

1981-1982: "Bourse de longue durée du Patrimoine de l'Université" Université de Liège, Belgique: eight months at the "Laboratoire de Biophysique, Institute de Physique Expérimentale, Université de Liège, Belgique".

1981: Course on "Magnetic Resonance - Biomedical Applications".

1983-1984: "Borsa di studio del Ministero Italiano della Pubblica Istruzione, per il perfezionamento presso Istituzioni Estere di livello universitario": one year at the Dept of Biochemistry, King's College London.

1984-1986: A.I.R.C. (Associazione Italiana per la Ricerca sul Cancro) fellow: three years at the Dept. of Experimental Medicine and Biochemical Sciences, University of Perugia.

1984: European Photochemistry Association-Gruppo Italiano di Fotochimica: Introductory School of Photochemistry.

1988-1992: Grants from the CNR-British Council "Agreement of exchange of researchers": several periods of research experience, for a total of about two years, at the Dept. of Biochemistry, King's College London.

1990: NATO-ASI fellow and NATO-ASI "Final competitive fellow" to attend the 10th Course of the International School of pure and applied Biostructure : Molecular basis of human Cancer.

Present position:

2007 - today: full Professor of Biochemistry at the University of Perugia

- Dean of the Courses in Biotechnology.
- Deputy Rector with responsibility for the Rights to Education.
- Scientific Director of the Biochemistry and Molecular Biology Unit.
- Member of the Governing Council of the CEMIN (Center of Excellence on Innovative Nanostructured Materials).

- Member of the Governing Council of the Foundation “Istituto Tecnico Superiore-ITS” News technologies for the made in Italy and life sciences, with responsibility for the ITS on Biotechnology.
- Deputy Director of the Department of Chemistry, Biology and Biotechnology.

Previous appointments:

1987-1991: “Tecnico laureato” at the University of Perugia.

1991 - 2001: Researcher in Biochemistry at the University of Perugia.

2001-2006: Associated Professor of Molecular Biology at the University of Perugia.

Teaching and Mentoring:

1987 - today: - a number of undergraduate and graduate courses, among which:

Biochemistry, Molecular biology, Recombinant technologies, Proteomic;

- courses for post-graduate schools of specialization in Neurology and in Clinical Biochemistry and for Doctorate school, among which:

Neurochemistry, Molecular diagnostic methodology, Enzymology.

1997-2007: Member of the Academic Board of the PhD in Cellular and Molecular Biology and Pathology,

1998-2002: Teacher abroad (France, UK and Germany) for the Socrates-Erasmus program

1985-today: Supervisor of about 150 three-year degree and master's degree thesis in Biology, Biotechnology, Chemistry, Pharmacy

2001-today: Supervisor of 15 PhD students.

2001-today: Coordinator of Erasmus Exchange Programmes

2003-2012: Member of the Academic Board of the PhD in Vascular Biology and Pathophysiology, University of Perugia.

2008-2011: Member of the Academic Board of the International PhD in Molecular Pathogenesis, Immunology and Transmissible Agent Control that Causes the Principal Diseases Associated to poverty: Malaria, Tuberculosis and AIDS”.

2000 Coordinator of EU-funded specialization Course “Expert in technological applications of biosensors and micro- and nano-systems” at the University of Perugia.

2000 Member of the Academic Board of the International PhD in Biotechnology with the responsibility of the curriculum in Molecular and Industrial Biotechnologies

Leading scientific initiatives:

2013-today: Founder and Scientific Director of the Academic Spin-Off “Enzyme and Cell Biosolutions”, winner of the Umbria StartCup competition in 2012.

Memberships and Services:

- Component of the Editorial boards of the international journals: “Neurochemical Research”, “J. of Alzheimer’s Disease, Aging and Neurodegeneration”, “Genes”.
- Referee of several international scientific journals such as “Biochimica et Biophysica Acta”, “FEBS Letters”, “Journal of Neurochemistry”, “Glycoconjugate Journal”, “Journal of Alzheimer’s Disease”, “American Journal of Molecular Biology”, “Journal of Biological Chemistry”, “Neuroscience Letters”, “Neurological Sciences”, “PloS ONE”, “Genes”.
- Member of the Organizing Committee of the School of Specialization in Clinical Biochemistry, Faculty of Medicine and Surgery University of Perugia
- Member of the Organizing Committee of the Winter School on Biotechnology, University of Perugia (2014 - 2018)
- Member of the Organizing Committee of the 16° European Study Group on Lysosomal Diseases (ESGLD) Workshop, Perugia 27-30 September 2007.
- Member of the Organizing Committee of the X National Biotechnology Congress, Perugia 17-19 September 2008.
- Referee for Scientific Institutions: National Science Centre Poland; Centro di Ricerca in Agricoltura - CRA (IT); Ministero Italiano per l’Università e la Ricerca -MIUR (IT), German-Israel Foundation for Research and Development; The Czech Science Foundation (GACR).
- Member of the Italian Society of Biochemistry and Molecular Biology, the Biochemical Society, U.K., the European Study Group on Lysosomal Diseases, the “Società Italiana per lo studio degli errori congeniti del metabolismo” (SISECM), the Italian Proteome Society.
- Member of the “Consorzio interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali” (INSTM) (2013-today)
- Member, and scientific coordinator of one of the units, of the “Consorzio Interuniversitario in Biotecnologie”-CIB (1998-today).
- Member of “Istituto Nazionale di Biostrutture e Biosistemi”-I.N.B.B. (1994-today).

Scientific profile:

Scientific categories: Biochemistry, Molecular Biology, Clinical Biochemistry, Biotechnology.

Research area: (i) biochemical, molecular biology and nanotechnology approaches for investigating the endosomal-lysosomal-autophagic system in health, cancer, aging and neurodegenerative diseases and developing innovative therapeutic strategies; (ii) identification of risk and protective factors for the prevention of chronic-degenerative diseases; (iii) biocatalysis, enzyme purification, characterization and immobilization.

Main Topics

- Porphyrins-membrane models interaction and their photodynamic action.
- Biochemistry and molecular biology of the lysosomal system and the pathological implications of lysosomal dysfunction.
- Lysosomal glycohydrolases atypical isoenzymes identification and their purification by original chromatographic methods.
- Development of a synthetic specific substrate for beta-hexosaminidase subunits determination.
- Identification, purification, biochemical characterization, targeting and biological role of glycohydrolases involved in glycosphingolipid metabolism.
- Development of enzyme /gene/stem cell-replacement therapeutic strategies for lysosomal metabolic disorders with neurological involvement.
- Involvement of the endosomal-lysosomal system in cancer, neurodegenerative disorders and aging.
- Purification and characterization of micro- and nano vesicles (exosomes) from different human cell types and body fluids.
- Generation of biohybrid tissue/organ by using stem cells and biomaterials for regenerative medicine application.
- Functionalized biodegradable nanoparticles for drug delivery.
- Glycosphingolipids and phospholipids metabolism.
- Biochemical studies of the phospholipidic metabolism in different cellular pathways (e.g. signal transduction and apoptosis) and in pathological conditions (e.g. drug induced phospholipidosis).
- Production of recombinant proteins for biomedical, bioremediation and green energy applications.

- Molecular basis of the reactivation of *Toxoplasma gondii* tissue cysts and development of new therapeutic strategies for *Toxoplasma* chronic infection by using lysosomal protease inhibitors.
- Biocatalysis/enzymatic catalysis, also through the use of immobilized enzymes, for biomedical and industrial applications.

Funding:

She has successfully attracted funding for several research projects from: CNR (Centro Nazionale delle Ricerche), MIUR (Ministero Italiano dell'Università e della Ricerca), MIPAF (Ministero Italiano delle Politiche Agricole e Forestali), Ministero degli Affari Esteri, European Union, US NIH, Regione Umbria POR FSE, Local Authorities, Private Foundations (Telethon, AIRC, ELA ecc).

Publications:

She has published 150 articles in international peer-reviewed journals and several book chapters. She has been invited speaker in national and international congress and scientific meetings, and invited university lecturer in Italy and abroad.

Complete list of Scientific Publications and Patents:

available at: <https://scholar.google.it/citations?user=ujUp2MMAAAAJ&hl=it>

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