

BIOGRAPHICAL SKETCH Giovanni Tosi

NAME	POSITION TITLE
Giovanni Tosi	Full Professor, department of LIFE Sciences

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Liceo Scientifico TASSONI	Maturità Scientifica Degree	1991-1996	Scientific and Humanistic Sciences
University of Modena and Reggio Emilia, Faculty of Pharmacy		1996-2002	Pharmacy
University of Modena and Reggio Emilia		2002-2003	Drug Sciences
Department of Pharmaceutical Sciences, Specialization Upgrade in Drug Sciences.			
University of Modena and Reggio Emilia. PhD school in Drug Sciences.	PhD	2003-2006	Nanomedicine, Pharmaceutical Technology
Academic researcher/Assistant Professor	\	2006-today	Nanomedicine and Pharmaceutical Technology
Research associate at NEST, Istituto Nanoscienze-CNR, Piazza San Silvestro 12, 56127 Pisa (Italy)		2014-	Nanomedicine and Pharmaceutical Technology
Associate Professor in Pharmaceutical Technology, Department of Life Sciences, University of Modena and Reggio Emilia, Italy		2015-	Nanomedicine and Pharmaceutical Technology
Full professor certificate in Pharmaceutical Technology		2017	Nanomedicine and Pharmaceutical Technology
Full professor certificate in Pharmaceutical Technology		2020	Pharmaceutical Technology

A. Positions and Honors.

Since November 2005, Dr. Giovanni Tosi is researcher in the scientific field of Pharmaceutical Technology at the University of Modena and Reggio Emilia (PI at the department of Pharmaceutical Sciences, which belongs to the faculty of Pharmacy). Since 2015, he is associate professor in the same field. He got certificate for Full professor in 2017. He is Full professor since 2020.

He was born in 1977 (March, 2nd) in Bologna, Italy, and got his degree in Pharmacy in 2002 with 110/110. He got his PhD in Pharmaceutical Sciences in 2005 at the University of Modena and Reggio Emilia, Italy. He is now Coordinator of "Applied Technology" curricula for the PhD school in Health Products, member of Instruments Commission of Dep.Pharm.Sci., Contact Person ILO of Dep.Pharm.Sci, Research products, Representative of the Dep.Pharm.Sci. in the Central Board of Animal House of University of Modena and Reggio Emilia.

He is now also Research associate at NEST, Istituto Nanoscienze-CNR, Pisa (Italy).

His works on Nanoparticles for CNS delivery and targeting were honored with national prizes and awards (La Manna Prize for Student Thesis he drove), Jorge Heller Outstanding Paper Award, 2005) and Innovation price (AFI2005, AFI 2006). His work on Nanoparticles for CNS drug delivery has been recently awarded as one of the Hot Topic (150 selected research over 19.000 proposals) at the World Neuroscience Meeting (Society for Neuroscience) in Washington DC, November 2011 and World Neuroscience Meeting (Society for Neuroscience) in New Orleans, November 2012.

He is author or co-author of more than 100 publications in international journals (of which 5 are reviews and 3 are book chapters) and gave over 250 presentations (invited speaker, oral presentations and posters) in international and national congresses.

He participated as collaborator in several Italian projects supported by the Italian Research Ministry (main 2005-2009, project on Nanoparticles for CNS drug delivery, 160kEuro funding) and HDF funding (project on Nanoparticles for Huntington Disease, 20k Euro). He is now collaborating with a broad network of scientists at the University of Uppsala (S), University of Ulm (D), University of Marsilles (Fr), University of Alabama (USA), University of Wien (A), University of Padova (IT), UniSTEM Milano (IT), Istituto Superiore della Sanità Rome (IT), IRCCS Burlo Garofolo, Trieste (IT) and many national and international industries (Gilead Sciences, Biomarin). He currently acts as referee for the top journals in nanotechnology and nanomedicine such as Journal of Controlled Release, Biomaterial, Nanomedicine and many other journals dealing with Nanotechnology, Drug Delivery and Nanomedicine.

He is Member of the Editorial Advisory Board of "Drug Delivery Letters", "Journal of Nanoneuroscience" and "ISRN Pharmaceutical". In 2009, he organized the Italian Chapter Controlled Release Society meeting in Modena (November, 3rd-5th) with national and international invited speakers, expert in the different fields of neuroscience and nanotechnology.

He is also member of the Committee for Research of University of Modena and Reggio Emilia.

He is scientific delegate for international cooperation and coordinator of UNIMORE Nanomedicine Platform since 2017.

RESEARCH interest:

The research activity is based on the development of lipid and polymeric systems for the delivery and the targeting of drugs to diseased tissues or cells. In particular, drug delivery to the Central Nervous System, by using nanoparticulate vectors (Np). In particular, the research is focus on the planning, preparation, characterization and administration of Np after surface modifications. By applying in vivo pharmacological tests, personally performed by dr. Tosi, several interesting results have been reached, confirming the high potential of these systems. In particular, the NPs, loaded with selected drugs or labeled with fluorescent dyes, were found to be able to cross the Blood-brain barrier, opening the study to the possibility of a non-invasive treatment of cerebral pathologies. At the same time, considering the guidelines of the European Community and FDA, a number of studies on the biodistribution of these vectors, by using fluorescent dye and HPLC/fluorimetric methodologies, have been performed. Furthermore, over the last years, his interest was also deputed to the preparation and optimization of liposomal nanocarriers for the delivery of gene material (in particular oligonucleotides) in Keratinocytes (biological target: skin pathologies) and tumor targeting. After in vitro test, the research reached an increased transfection efficacy mediated by these novel vectors , confirmed by confocal microscopy and citofluorimetric analysis.

C. Research Support.

National Grants:

2013- CARIPARO Grant, Paediatric research 2012-2014: Paediatric neurodegenerative disorders: preclinical evaluation of a nanoparticle-mediated brain therapy and identification of biomarkers of pathogenesis and treatment efficacy, total budget 270.000 Euro. Role: unit coordinator.

2015- FAR UNIMORE grant: Single Particle Tracking: nanomedicine and quantum dots, 33.000 Euro, Role: Coordinator

2016- FARUNIMORE dipartimentale: Nanomedicina applicata a patologie multiorgano: direzionamento di enzimi al cervello, PI Tosi

2017-Telethon grant: Targeting neurons with cholesterol. How can it change the future of Huntington Disease patients, 179.000 Euro, PI Prof. E. Cattaneo, role of UNIMORE: partner

2017 Cariparo Grant Paediatric research: Pediatric neurodegenerative disorders: optimizing nanoparticle-mediated

strategy for brain treatment. Role: partner,

International Grant:

2011- DAAD Vigoni: Valutazione di carrier nanoparticellari modificati per il superamento della Barriera Emato-Encefalica per il direccionamento cellulo-specifico di farmaci al Sistema Nervoso Centrale, role: co-P.I.

2011-ELA Research Foundation: Leading nanomedicine into the therapy for Leukodystrophies: nanoparticles overcoming the blood-brain barrier to treat the mouse model of Krabbe Disease; role: unit partecipant.

2012-Hereditary disease foundation: Effects of Cholesterol Delivery Using Nanoparticles in the R6/2 Mouse Model of Huntington's Disease, Role: Principal Investigator

2016-ELA Research Foundation: Development of a novel, nanovector-mediated enzyme replacement therapy for Globoid Cell Leukodystrophy (GLD), Role: Unit Coordinator

2018-IMI EU Grants: Investigating Mechanisms and Models Predictive of Accessibility of Therapeutics (IM2PACT) Into the Brain, Role: Partner

2019- PROGETTI DI RICERCA SCIENTIFICA E TECNOLOGICA DI GRANDE RILEVANZA, Ministero degli Esteri, Progetti Italy-USA, Nanomedicine for BBB-crossing in CNS oncologic pathologies. Role: coordinator

2020- Vinci Project, PhD grant for Nanomedicine for BBB-crossing in CNS oncologic pathologies, Role: coordinator