

Prof. Chiara Tonda-Turo (born 1982) received Master Degree (2006) in Biomedical Engineering from Politecnico di Torino and PhD (2011) in Biomedical Engineering at Politecnico di Torino, where she worked on the development of bioartificial constructs for repairing peripheral nerve. From 2021, she is an Associate Professor at the Department of Mechanical and Aerospace Engineering at Politecnico di Torino.

Chiara scientific background is related to the design, processing and characterisation of biomedical materials (natural and synthetic polymers and their blend), aiming to nano- and micro- scale design and manufacturing of biomimetic and innovative medical devices for tissue engineering, advanced therapies in regenerative medicine, controlled drugs/biomolecules release and development of in vitro-like tissue models

Since the beginning of her academic carrier in 2009, she has authored **56 publications among which 13 as first author; 12 as second author; 4 as last author and 13 without the presence as co-author of her PhD supervisor which demonstrates her key role in conducting and leading research, with overall 1850 citations from 1620 documents achieving H-index equal to 24 (Scopus database)**. The number of overall citations has progressively increased (Scopus data).

Papers were published constantly in this period with an average of around 5 publications per year and a peak of 8 papers in 2015 and 2018. Among the 52 publications, the 80% are published in first quartile journals in topics related to biomedical engineering, bioengineering, material science, biochemistry. In addition, **Chiara research has led to 16 oral presentations at national and international meetings and conferences and several seminars at prestigious universities** (Cambridge University - UK, Karolinska Institutet (KTH) – Svezia, University of Newcastle-UK, University Paris Diderot – France, UPC Barcelona, Spain). Furthermore, Chiara chaired two symposia at the Termis-World Congress in 2018 and in 2020 and organized 2 international workshops (in 2014 and 2015). She has been invited to present at 6 prestigious international conferences and workshops

1. 5th Healthcare and Life Science (HLS) & Entrepreneurship 2020, Pisa, Italy. Presentation Title “Biomimetic nanofibrous membranes: a versatile substrate in biomedical applications”.
2. World Biomaterial Congress 2020, Glasgow, UK-YSF Workshop “PhD thesis: how to be effective in preparation”.
3. ISSIB 2019, Quebec City, Canada. Presentation Title “Biomimetic and bioactive nanofibrous interfaces to modulate cell fate”
4. Workshop “Smart Tools for Caring: Nanotechnology Meets Medical Challenges”, 2018, Pontedera, Italy. Presentation Title “Advanced therapies to treat spinal cord injuries”.
5. TERMIS World Congress, 2018, Kyoto, Japan. Presentation Title “Injectable Mesenchymal Stem Cells Loading Hydrogel for Spinal Cord Regeneration”
6. Workshop “Engineered Biomaterials and Devices In The Regenerative Medicine Of The Nervous System” 2015, Torino, Italy. Presentation Title “Towards New Tissue – engineered in vitro models of neurodegenerative diseases “.

The quality of her research has been further recognised with a special prize for my PhD thesis (Alberto Mazzoldi Award for Doctoral Thesis, National Group of Bioengineering) and the Best poster Award at Italian Society for Biomaterials Congress in 2013 and best presentation Award at the Italian Venture Capital in 2012 Chiara is also **co-inventor of 2 patents** (TO2010A000726 -PCT/IB2011/053787 - WO2012029020 licensed to the company DIPRO Medical Device and TO2011A000549 – PCT/IT2012/000182). Chiara leadership in industrial innovation was also demonstrated as she was cofounder and CEO (from 13/06/2013 to 01/09/2016) of the academic spin off GELTIS SRL which produces injectable polymer formulations for advanced drug delivery (GELTIS was sold in 2017 to a pharma company).

Chiara is currently task leader of one project funded by Piedmont Region on the development of lung-on-a-chip (Deflect) and one project funded by CRT foundation on potentiality of bioprinting in modelling complex tissues and she is currently coordinating the research activity of 3 PhD students at Politecnico di Torino. During her academic carrier, Chiara has been co-leader of a project funded by CRT foundation on innovative scaffolds for spinal cord regeneration, WP leader of MultiWires (INCOMERA 2016) and task leader of Impress project financed by the University of Leeds and she has been involved in many national and international projects 1 H2020 project (MOZART), 1 ERA-net project (NANOWELL), 1 FP EU project (REBIOSTENT), 3 regional projects (BICONERVE, PROTEINN, LAGRANGE). Chiara active involvement in several national and

international projects demonstrates her ability to manage research teams and give her the opportunity to interact with international research group and to consolidate her scientific expertise.

Chiara has been visiting scientist at Cambridge University in UK in 2015 and at KTH Royal Institute of Technology in Stockholm in 2019 within the project of Internalization of the research financed by Compagnia Sanpaolo. Since 2013 Chiara has supervised 4 PhD students and several Master students of Biomedical Engineering from Politecnico di Torino as well as students from EU universities (Universitat Politecnica di Catalonia – Spain, University of Valencia – Spain). Within her academic activities, she has several teaching experiences in courses at Master Degree in Biomedical Engineering as principal lecturer (Biomimetic Systems and Biochemical Engineering) and as teaching assistant (Bionanotechnology, Engineering For Regenerative Medicine and Bioreactors). At Politecnico di Torino, she is member of College of Bioengineering and supervisor for incoming foreign students. Her experience in teaching and supervising students has been recognized as she has been invited as an invited speaker to the Young Scientific Forum during the Biomaterials World Congress in 2020.

She was Guest Associate Editor for Frontiers in Bioengineering of two Research Topics in 2019 and in 2021.

Chiara main research topics and scientific achievements are related to:

(i) Design of nerve guidance channels for peripheral nerve regeneration having optimized properties able to fit the physiological requirements with 15 relevant publications on the topic (co-authored by national and international collaborators).

(ii) Optimisation of crosslinking process and fabrication methods for natural-based scaffold preparation (proteins such as gelatin and collagen and polysaccharides such as chitosan and alginate) to fabricate highly biocompatible substrate for tissue regeneration with 7 relevant publications on the topic (co-authored by national and international collaborators).

(iii) Definition of protocol for solvent-free fabrication of natural based-based nanofibres through “green electrospinning” and analysis of how fibres morphology influences cell fate. Recently different anti-oxidant, piezoelectric, electroconductive and antibacterial agents has been loaded within the fibres to add functionalities able to direct cell response with 6 relevant publications on the topic (co-authored by national and international collaborators). The activities related to this topic are ongoing in collaboration with University of Newcastle (UK), University of Coimbra (Portugal) and The Italian Institute of Technology (Italy).

(iv) Development of natural-based injectable hydrogels as cell carriers and drug delivery systems with 5 relevant publications on the topic (co-authored by national and international collaborators), one of those listed in the Top 100 Scientific Reports materials science papers in 2019. The activities related to this topic are ongoing in collaboration with Neuroscience Institute Cavalieri Ottolenghi (Italy) and University of Newcastle (UK).

(v) Development and biological characterization of new cell-friendly bioinks from natural derived polymers (i.e. carboxymethylcellulosa, starch) chemically modified to be crosslinkable through light (visible or UV) with 3 relevant publications on the topic (co-authored by national and international collaborators). The activities related to this topic are ongoing in collaboration with Karolinska Institutet (KTH) – Sweden.

(vi) Development of in vitro models through additive manufacturing technologies (e.g. fused deposition modelling and bioprinting) with 2 relevant publications on the topic (co-authored by national and international collaborators). The high-quality of Chiara research in this field is confirmed by her involvement as member of the Scientific Committee of Interuniversity Center for the Promotion of 3Rs Principles in Teaching and Research in Italy. On this topic Chiara is currently tutoring two PhD students working on the development of in vitro model of the alveolar unit in lung and in vitro model of acino-ductal pancreatic unit.

Finally, Chiara is also dedicated to outreach activities to share knowledge and engage the general public (i.e. press release in non-scientific journal, Open Days at Politecnico di Torino, meeting with High school students, Podcasts, public events such as “Just the Woman I’m”, “European Researchers Night”).