



Valeria
Chiono

CONTACT

Nationality: Italian

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ABOUT ME

Valeria Chiono is currently Full Professor at the Department of Mechanical and Aerospace Engineering of Politecnico di Torino, Italy. She has a Master Degree in Chemical Engineering (summa cum laude) and a Ph.D in Chemical and Materials Engineering from the University of Pisa, Italy. At Politecnico di Torino, she manages a multidisciplinary research team, engineering scaffolds, hydrogels and nanoparticles for regenerative medicine, and also deals with the design of in vitro models of human tissues, such as cardiac tissue, skin and blood brain barrier. She has coordinated several research projects among which STARIGEN "Future in Research, FIRB2010" project, financed by the Italian Ministry of Education and Research (MIUR) in 2012-2015. She has also participated to several European (REBIOSTENT, HYMEDPOLY), National and Piedmont Region projects. Currently, she is coordinating the ERC Consolidator project BIORECAR (contract number: 772168; 2018-2023), developing a new cardiac regenerative medicine strategy by a multifunctional approach aimed at direct reprogramming. Furthermore, she is involved in EVPRO EU project (contract number: 814496; 2019-2023) working at the development of an in vitro model of bone tissue for preclinical assessment of new hip revision endoprosthesis provided with an innovative anti-inflammatory coating. She manages Politecnico di Torino Unit activity within Italian Centro 3R. She is Lecturer of the Courses "Engineering for Regenerative Medicine", "Cell and Tissue Engineering" and "New advances in alternative preclinical trials", at Biomedical Engineering Faculty - Politecnico di Torino. She is author of 115 papers including research articles, book chapters, long and short abstracts in scientific peer-reviewed journals (H-index: 29; Scopus Source) and 4 patents in the field of biomaterials and tissue engineering.

EDUCATION AND TRAINING

01/01/2003 - 31/12/2006 - Pisa, Italy

Ph.D in Chemical and Materials Engineering (13/06/2006)

Università di Pisa

PhD thesis title: "Preparation and characterisation of blends of natural and synthetic polymers for applications as biocompatible and/or low-environmentally impact materials" - Tutors: P. Giusti, L. Lazzeri; G. Ciardelli; M. Pracella.

01/11/1994 - 14/02/2001 - Pisa, Italy

Master Degree in Chemical Engineering: 110 cum Laude (14/02/2001)

Università di Pisa

Thesis title "Production of compatibilised polyethylene/nylon-6 blends" - Relators: Prof. P.L. Magagnini and M. Paci.

LANGUAGE SKILLS

MOTHER TONGUE(S): Italian

English

Listening
C2

Reading
C2

Spoken
production
C1

Spoken
interaction
C1

Writing
C2

ORGANISATIONAL SKILLS

Organisational skills

Research Project Management

- Coordination of 7 national and international research projects (detailed in the following paragraph) and collaboration in further 22 national, European and international projects.

Research Group Management

- Current coordination of "Biorecar" research team consisting of 1 senior researcher, 1 postdoctoral research fellow, 5 Ph.D students and 6 undergraduate fellows.
- Since 2007, supervision of: 9 postdocs; 15 PhD students, 2 researchers, 1 visiting PhD student, > 50 thesis students, at DIMEAS - Politecnico di Torino, Italy.
- During 2003-2007, supervision of 4 Thesis Students at the Department of Chemical Engineering, Industrial Chemistry and Materials Sciences, University of Pisa, Italy

Other organizational/managerial responsibilities

- Since 2016: Academic tutor of Erasmus Incoming students in Biomedical Engineering at Politecnico di Torino.
- Since 2019: Unit Responsible for Politecnico di Torino within Centro 3R (www.centro3r.it).
- Since 2019: Member of "Departmental Council" at DIMEAS, Politecnico di Torino.
- During 2014-2019: Member of the "Lab Committee" at DIMEAS, Politecnico di Torino.
- Since 2012: Member of the "College of Biomedical Engineering" at Politecnico di Torino.
- Since 2014: Member of the "Doctorate College in Bioengineering and Medical-Surgical Sciences".
- Since 2013: Organization of three international workshops, national and international symposia for TERMIS Society and co-organizer of congresses and Ph.D Schools, among which SIB Conference 2013, GNB PhD School 2021 and the International Society of Biofabrication Conference 2021.
- Since 2015: Editor-in-chief of the journal "Biomedical Science and Engineering" - Page Press.
- Since 2017: member of the editorial board of "4Open Journal" - Life Sciences - Medicine.
- From 2017: "Review Editor" for "Frontiers in Bioengineering and Biotechnology" and "Frontiers in Molecular Biosciences".
- Since 2020: Member of the "Topic Board" of "International Journal of Molecular Science" - MDPI.
- Since 2020: Member of the editorial board of "Biomedical Materials" - IOP.
- Since 2006: Member of the Italian National Bioengineering Group (GNB)
- Since 2012: Member of the International Society of Tissue Engineering and Regenerative Medicine (TERMIS).
- Since 2013: Member of the Italian Society for Biomaterials (SIB),
- Since 2017: Member of the European Society for Biomaterials (ESB).
- Since 2019: Member of the European Society of Cardiology (ESC).

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

Communication skills acquired during my work activity as a professor and researcher, and in outreach activities including interviews for TV programs and article newspapers, as well as the participation to public events for dissemination (Researchers' Night; Just the Woman I am; Conversazioni in Biblioteca - Politecnico di Torino - DIATI; Biennale di Tecnologia - Politecnico di Torino).

WORK EXPERIENCE

31/12/2018 - CURRENT - Turin, Italy

Full Professor

Department of Mechanical and Aerospace Engineering, Politecnico di Torino

Turin, Italy

09/03/2015 - 30/12/2018 - Turin, Italy

Associate Professor

Department of Mechanical and Aerospace Engineering, Politecnico di Torino

Turin, Italy

01/01/2018 - CURRENT - Pisa, Italy

Associated member of IPCF-CNR

Institute for Chemical and Physical Processes (IPCF-CNR)

Preparation of biodegradable polymer substrates and their biomimetic surface functionalization.

Pisa, Italy

08/03/2012 - 08/03/2015 - Turin, Italy

Researcher (RTDA)

Department of Mechanical and Aerospace Engineering, Politecnico di Torino

Research activity within FIRB2010 STARIGEN project and teaching activity in the field of Industrial Bioengineering.

Turin, Italy

01/07/2010 - 07/03/2012 - Turin, Italy

Post -Doctoral Research Activity

Department of Mechanical and Aerospace Engineering, Politecnico di Torino

Activity within ACTIVE project ("Advanced Cardiovascular Therapies").

Turin, Italy

01/07/2007 - 30/06/2010 - Turin, Italy

Post -Doctoral Research Activity

Department of Mechanical and Aerospace Engineering, Politecnico di Torino

Research activity within EU Project PHOTONANOTECH -NMP4-CT-2007-033168 "Photozyme Nanoparticle Applications for Water Purification, Textile Finishing, Photodynamic Biomineralization and Biomaterials Coating".

Turin, Italy

01/04/2006 - 31/05/2007 – Pisa, Italy

● **Post -Doctoral Research Activity**

Department of Chemical Engineering, Industrial Chemistry and Materials Science, Università di Pisa

Research activity within EU Project HIPERMAX - NMP3-CT-2003-505790 "High Performance Industrial Protein matrices through bioprocessing".

Pisa, Italy

01/01/2006 - 28/02/2006 – Pisa, Italy

● **Post -Doctoral Research Activity**

Department of Chemical Engineering, Industrial Chemistry and Materials Science, Università di Pisa

Research activity within FIRB Project: "Development of materials and technologies for controlled drug delivery systems in endovascular devices" on the subject "Preparation of polymer systems for the controlled release of active agents from endovascular prostheses". Project Responsible: Prof. Paolo Giusti.

Pisa, Italy

01/10/2002 - 30/11/2002 – Pisa, Italy

● **Post-graduate research collaborator**

Center for Polyphasic and Biocompatible Macromolecular Materials. Research National Council (CNR)

Research activity on the subject: "Physicochemical characterization of polyolefin-based materials for applications as packaging films: analysis of experimental physicochemical data for the evaluation of the influence of the structural characteristics and processing parameters on the materials properties". Project responsible: Dr. Mariano Pracella.

Pisa, Italy

01/02/2002 - 31/07/2002 – Pisa, Italy

● **Post-graduate research collaborator**

Center for Polyphasic and Biocompatible Macromolecular Materials, CNR

Research activity on the subject: "Physicochemical characterization of polyolefin-based materials for applications as packaging films: analysis of experimental physicochemical data for the evaluation of the influence of the structural characteristics and processing parameters on the materials properties". Project responsible: Dr. Mariano Pracella.

Pisa, Italy

01/04/2001 - 31/12/2001 – Pisa, Italy

● **Post-graduate research collaborator**

Department of Chemical Engineering, Industrial Chemistry and Materials Science, Università di Pisa

Research activity on the subject: "Effect of the compatibilisation process on the morphology and properties of blends between thermoplastic polymers". Project responsible: Prof. Pierluigi Magagnini.

Pisa, Italy

15/02/2018 - CURRENT - Turin, Italy

● **Politecnico di Torino Unit Manager for Centro 3R**

Centro 3R

Management of Politecnico di Torino activity within Centro 3R (www.centro3r.it).

JOB-RELATED SKILLS

Job-related skills

Consolidated experience in Tissue Engineering and Industrial Bioengineering with specific skills in:

- Design of scaffolds for human tissue modelling or regeneration
- Tailored surface functionalization of scaffolds and medical devices

Coordination of research projects

- ERC-CoG 2017 BIORECAR Project (2018-2023) "Direct cell reprogramming therapy in myocardial regeneration through an engineered multifunctional platform integrating biochemical instructive cues".
- BIOMODE Project - Compagnia di San Paolo (2017-2021) "*In Vitro* Experimental Models for Biomaterials-Mediated Drug Delivery to the Central Nervous System".
- PROOF OF CONCEPTS (PoC)" Project - Compagnia di San Paolo – 2017: "Method for the preparation of cellularised constructs based on thermosensitive hydrogels".
- PAD-INJ Project - Compagnia di San Paolo (2014-2016) "Smart Injectable Drug-Delivery systems for Parkinson's and Alzheimer's Disease Treatment".
- STARIGEN Project - FIRB 2010 (2012-2015) "Bioartificial materials and biomimetic scaffolds for a stem cell based therapy in myocardial regeneration".
- Project - Call for Finalized Sanitary Research 2008 bis (2008-2009) "Nano-structured biomimetic coatings for regenerative medicine".
- Project - Call for Finalized Sanitary Research 2009 (2009-2011) "Multifunctional nano-coatings for medical devices with improved anti-inflammatory and antibacterial properties".

Scientific production:

- 115 publications: 70 articles in peer-reviewed journals, 3 long abstracts in journals, 29 abstracts in journals, 13 book chapters.
- H-Index: 29 (Scopus); 32 (Google Scholar)
- Citations: 3581 (Scopus); 4794 (Google Scholar)
- Co-author of 4 patents

Main publications:

- 1) C. Paoletti, C. Divieto, G. Tarricone, F. Di Meglio, **V. Chiono** (2020). "MicroRNA-Mediated Direct Reprogramming of Human Adult Fibroblasts Toward Cardiac Phenotype" *Front. in Bioeng. Biotechnol.* <https://doi.org/10.3389/fbioe.2020.00529>.
- 2) S.W.L. Lee, M. Campisi, T. Osaki, L. Possenti, C. Mattu, G. Adriani, R.D. Kamm, **V. Chiono** (2020) "Modeling Nanocarrier Transport across a 3D In Vitro Human Blood-Brain-Barrier Microvasculature". *Adv Healthc Mater.* 9(7): e1901486.
- 3) S.W.L. Lee, C. Paoletti, M. Campisi, T. Osaki, G. Adriani, R.D. Kamm, C. Mattu, **V. Chiono** (2019). "MicroRNA delivery through nanoparticles", *J Control. Rel.* 313: 80-95.
- 4) M. Campisi, Y. Shin, T. Osaki, C. Hajal, **V. Chiono**, R. D. Kamm, R.D. (2018). "3D self-organized microvascular model of the human blood-brain barrier with endothelial cells, pericytes and astrocytes". *Biomaterials*; 180: 117-129.
- 5) **V. Chiono**, C. Tonda-Turo (2015). "Trends in the design of nerve guidance channels in peripheral nerve tissue engineering", *Prog. Neurobiol.*, 131: 87-104.

Teaching activity at Politecnico di Torino - Biomedical Engineering Faculty:

- "New advances in alternative preclinical tests", Master Course
- "Engineering for Regenerative Medicine" Master Course
- "Cell and Tissue Engineering" Bachelor Course
- "Biomimetic Systems" Master Course