

CURRICULUM VITAE MIRIAM COLOMBO

• Position

- From October 1st, 2019 - present: Associate professor in Clinical Biochemistry and Clinical Molecular Biology (BIO/12), University of Milano-Bicocca, Department of Biotechnology and Bioscience. National Scientific Qualification, BIO/12 - Clinical Biochemistry and Clinical Molecular Biology, for Full Professorship.

• Education and formation

- October 9th, 2008, degree in Medicinal Chemistry and Technology (University of Milan), with experimental thesis in Nanobiotechnology. Thesis title: “Superparamagnetic nanoparticles: synthesis, functionalization and biomedical applications”.
- April 23rd, 2012, PhD in Biology (University of Milano-Bicocca). Thesis title: “Synthesis and bio-functionalization of nanoparticles for breast cancer diagnosis and treatment.”

• Training

- 2nd European Summer School in Nanomedicine 2009 LISBON
- 3rd European Science Foundation Summer School “Nanomedicine 2011” LEUCOREA

• Employment

- January 2009, awarded of a 12+24-month fellowship for a collaboration to research in the field of Medical Sciences, University of Milan.
- July-December 2010, abroad fellowship in the lab of prof. Wolfgang Parak, AG Biophotonik, Philipps University of Marburg, Renthof 6, D-35032 Marburg, Germany.
- February 2012, awarded of a 24-month fellowship for development of nanoparticles for Biomedical application, University of Milan.
- September 1st, 2013, up to present, fixed time Researcher in Clinical Biochemistry (RTD BIO/12), University of Milano-Bicocca, Department of Biotechnology and Bioscience.

• Collaborations

MC actively collaborates with research groups of several national Universities (Milano and Monza; Pavia, Verona; Novara; Roma “Tor Vergata”; Parma; Padova; Sassari); Research institutes, IRCCS and Hospitals (Istituto Mario Negri, Fondazione Don Carlo Gnocchi; Fondazione ICS Maugeri; Ospedale San Matteo di Pavia; Ospedale San Raffaele; Humanitas; Ospedale L. Sacco; Istituto dei Tumori Milano, Poliambulatorio Brescia; CNR Milano e Napoli); foreign Universities and research centers (United States, Germany, United Kingdom, Spain, France, Canada, Finland).

Collaboration with Mind Project – Innovation District: IRCCS Galeazzi (IRCCS Scientific Direction and laboratory of Experimental Medicine, BIO/12).

In addition, MC has started collaborative activity with several analysis laboratories of clinical biochemistry in Lombardy, including: ATS Desio, Ospedale Civile di Brescia, Istituto di Medicina Biologica.

MC is UNIMIB reference and PI for the *Sistema Cosmetico Lombardo* and for the Framework Program Agreement between Lombardy Region and the Loire Valley for the European Cosmetic Research (S3P GO4 cosmetics).

Of particular significance, among the ongoing international collaborations:

- Prof. Wolfgang J. Parak, University of Hamburg, Germany
- Prof. Luis Liz-Marzan, Scientific Director of CIC biomaGUNE, San Sebastián, Spain
- Prof. Milan Mrksich, Northwestern University, Chicago, IL, USA
- Prof. Omid C. Farokhzad, Harvard Medical School, Boston, MA, USA
- Prof. Xuefei Huang, Michigan State University, USA
- Prof. Mato Knez, CIC nanoGUNE, San Sebastián, Spain
- Dr. Pablo del Pino, University of Santiago de Compostela
- Prof. Leaf Huang, UNC Eshelman School of Pharmacy, North Carolina, USA
- Prof. Mathias Brust, University of Liverpool

- Prof. Francesco Bertoni, IOR Institute of Oncology Research, USI Università della Svizzera italiana, Bellinzona, Switzerland

- **Competitive research grants**

- December 2022- December 2026 project Anthem MUR, Pilot reference.
- 2023-2025 PNRR MUSA project Spoke 5 “Luxury and sustainability”.
- 01/01/2022-31/12/2026, AIRC Investigator grant. Title: “Advanced Nanotechnology to Assist Keeping the tumor microenvironment Involved in cancer Neutralization (Anakin)” (€ 492.000).
- 03/2020, project of Cariplo, head of research unit. Title: “Study of the role of SP-D protein in SARS-CoV-2 coronavirus infection for the development of a therapeutic treatment (SPeeD)” (€ 55.000).
- 03/2020, project of FareInsieme Foundation. Title: “An innovative therapy based on nanoconjugates of the human pulmonary surfactant protein in SARS-CoV-2 coronavirus infection.” (€ 20.000).
- 02/2020, Regional grant for the establishment of an infrastructure “Nanotechnology for precision medicine and personalized beauty and Healthcare” (NanoCosPha) (€ 2.000.000); PI unit for nanoformulation and cosmetic: € 642.574.
- 2019, Regional grant: Call Hub Ricerca e Innovazione di Regione Lombardia titled: “call per progetti strategici di ricerca, sviluppo e innovazione volti al potenziamento degli ecosistemi lombardi della ricerca e dell’innovazione quali hub a valenza internazionale”. (24 months, Unit PI, € 90.000).
- 2018, Monovalent vs. multivalent targeted nanoconjugates: in vitro and in vivo molecular investigation of the interaction with breast cancer cells. Academic Funding Unimib 2018 (€ 25.000)
- 2016-2018, PI of the project Fondazione Cariplo-Regione Lombardia 2016-0886. Project title: “Multitasking peptide-loaded amphiphilic nanoparticles for treatment of acute and chronic inflammatory diseases and neurodegenerative disorders (MUNDIS)” (€ 100.000).
- 2016, Academic Funding Unimib 2016 (€ 25.000)
- 2015-2017, My First AIRC grant as PI of the project: “Magnetic nanoparticle-based delivery of the saporin toxin for the treatment of breast cancer” (€ 222.000).
- 2014-2016, Scientific Research in Biomedicine, Cariplo grant 2013-0943. Project title “Development of an innovative targeted therapy with functionalized nanoparticles for the management of fibrotic lung diseases due to uncontrolled mesenchymal cell proliferation” (€ 45.000).
- 2013-2015, integrated project of the *Fondazione Regionale per la Ricerca Biomedica* (FRRB), head of Bioanalytics and clinical chemistry research unit. Title: “Nanodrugs” (€ 680.000).

- **Infrastructures**

MC is the BtBs coordinator of the di nanoformulation and bioanalytics facility of the Regional Infrastructure of the University of Milano-Bicocca – Nanotechnology for personalized medicine, health, and beauty treatments (NanoCosPha) (total project value: 4 M€). This infrastructure consists of six integrated laboratories and related technological facilities, aimed at the development of experimentation and validation of new products also using modern technologies (e.g., nanotechnology). The objective of this infrastructure is the networking of different skills and technologies aimed at:

- 1) filling the gap between academic research and the productive network of the Lombardy area;
- 2) defining lead compounds (natural and synthetic molecules) and nano-drugs to be included in customizable pharmaceutical forms;
- 3) developing innovative synergistic action systems that combine nanocarriers with finely structured formulations;
- 4) exploiting nanotechnology to optimize cosmetic formulations with a particular focus on skin care, anti-age, and anti-inflammatory treatments.

- **Contracts**

- Intecos Group: Joint Lab (3 laboratories in U28). MC is the contact person for the activities in the field of cosmetics and supplements of this collaboration and responsible for the Scientific Committee. The Clinical Biochemistry Group is leader for the formulation and characterization laboratories of cosmetic products and the cell laboratory at the U28 building in Monza.

- Sistema Cosmetico Lombardo: partnership agreement for the development of the Lombardy Cosmetic System by the BtBs department.

- **Conferences (Oral Communications)**

- 2022, keynote speaker: NanoMedicine International Conference-NanoMed 2022, 26-28 October, 2022, Athens, Greece.
- 2022, Invited speaker: 3rd International Congress on Advanced Materials Sciences and Engineering, July 21-25, 2022 Opatija, Croatia.
- 2022, Oral communication: NanoinBio 2022 international conference, May 30-June 5 2022 Le Gosier, Guadeloupe, French Caribbean.
- 2021, Invited speaker: Nanotexnology 2021 (NN21), 6-9 July 2021, Thessaloniki, Greece.
- 2019, Invited speaker: Ricerca e Nanomedicina 18 June 2019, Pavia, Italy.
- 2019, member of the scientific board and organizing committee of the international conference Nanoinnovation 2019 and chair of the section: "New nanoscale drug delivery systems: recent advances in nanotheranostic". 11-14 June, Rome, Italy.
- 2019, Invited keynote speaker: 2nd International Conference on Nanomaterials and Nanotechnology and 22nd International Conference on Advanced Nanoscience and Nanotechnology "Bio-functionalized colloidal nanoparticles for therapeutic applications". 16-17 May 2019, Prague, Czech Republic.
- 2019, member of the scientific board and organizing committee of the international workshop Nanomedicine 2019 and speaker: "Colloidal nanoparticles: master key for biomedical theranostics". 2-3 May 2019, Milano, Italy.
- 2018, member of the scientific board and organizing committee of an international workshop in Nanoimmunology "Interaction between nanomaterials and the immune system: medical exploitations and safety issues". 9-10 July 2018, Milan, Italy.
- 2018, Invited keynote speaker: NanoMed 2018 international conference, October 23-25 Venice, Italy.
- 2018, Invited speaker: III International Symposium on Nanoparticles/Nanomaterials and Applications 22–25 January 2018, Caparica, Portugal ISN2A 2018
- 2017, Invited speaker: Nanoinnovation; Session title: new trends in nanomedicine. 26-29 November 2017, Rome.
- 2017, Invited speaker: Medical Nanotechnology 2017, October 18-19, Osaka, Japan.
- 2016, Invited speaker: ACS Meeting 2016, 13-17 March 2016, San Diego, Ca.
- 2016, Invited speaker: SPIE 2016 Photonics West Exhibition, 16-18 February 2016, San Francisco, Ca.
- 2014, Oral communication: 7th Annual Thematic Workshop of CRS Italy Chapter Nanomedicine: pharmacokinetic challenges, targeting and clinical outcomes, 6-8 November 2014, Florence (Italy).
- 2014, Invited speaker: 11th International Conference on Nanosciences & Nanotechnologies (NN14), 8-11 July 2013, Thessaloniki, Greece.
- 2013, Invited speaker: Zing Nanomaterials Conference 2013, 13-17 November 2013, Mexico.
- 2013, Invited speaker (chair): 10th International Conference on Nanosciences & Nanotechnologies (NN13), 9-12 July 2013, Thessaloniki, Greece.
- 2012, Oral communication: Nanomedicine Conference, 1-3 October 2012, Rome.
- 2012, Oral communication: Zing Nanoscience Conference, 14-17 February 2012, Lanzarote.
- 2011, Oral communication: Nanotoday Conference 2011, 11-15 December 2011, Hawaii.
- 2009, Oral communication: Zing Nanobio-Nanomedicine Conference, 21-25 January 2009, Antigua.

- **Memberships**

- October 2022- October 2023, appointed Coordinator of the Technical-Scientific Committee of the Joint-lab between Unimib and Intercos Group
- 2021-today, Member of the Scientific committee of the Unimib and Intercos Group Joint-lab
- 2021-today, Associate Editor for Frontiers in Nanobiotechnology and Frontiers in Biomaterials Science
- 2016-today, member of Austin Journal of Biotechnology and Bioengineering editorial board Frontiers in Molecular Biosciences
- 2013-2022, member of PhD teaching board of Materials Science and Nanotechnology
- 2013-today, member of PhD teaching board of Translational and Molecular Medicine (DIMET)

- **Awards and Honors**

- Winner of first prize “Young talent award competition 2019” of the Lincei National Academy.
- Winner of the fellow for the attendance of the 3rd European Science Foundation Summer School Nanomedicine 2011, for the scientific curriculum selection.
- Winner of the prize: Young researcher at the Nanotoday Conference 2011, for the scientific contribute selection.
- Best poster award at the Biotechnology and Bioscience Department-day, University of Milano-Bicocca, 2009.

- **Publications**

N. of publications: **108**

N. of publications in the last 10 years (2012-2022): **96**

n. of citations (as of 22/2/2023): 3.941 (Scopus); 4.932 (Google Scholar)

H-index: **34** (Scopus); 37 (Google Scholar)

i10-index: 75

Out of the 108 scientific publications of which Prof. Colombo is an author, for 7 of which the cover or title page has been offered. She is the author of 5 book chapters by invitation from international publishers. She is Corresponding author (*) of 23 of those publications and of 14 is first author.

- **Patent**

M. Colombo, F. Corsi, F. Granucci, D. Prospero, I. Zanoni. “Nanoconstructs with Pharmacological activity”. *Italian patent number RM2012A000350, 19/7/2012; PCT/IB2013/055943.*

S. Mazzucchelli, M. Truffi, **M. Colombo**, F. Corsi, D. Prospero, M. Bellini. “Ferritin nanoparticles comprising a chemotherapeutic agent”. *31/10/2019; PCT/EP2019/079832.*

- **Research interruptions**

- October 2012-February 2013 Maternity leave
- February 2017-June 2017 Maternity leave
- December 2022-May 2023 Maternity leave

Milano, 22th February 2023

Miriam Colombo