

## PERSONAL INFORMATION

Lucia Salvioni



📍 U3 building, Dipartimento di Biotecnologie e Bioscienze  
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## WORK EXPERIENCE

**02/2019 – 03/2022**

Research fellow (RTDA)

Dipartimento di Biotecnologie e Bioscienze, Università degli Studi Milano-Bicocca

**02/2019 – 03/2022**

Postdoctoral researcher

NanoBioLab, Dipartimento di Biotecnologie e Bioscienze, Università degli Studi Milano-Bicocca

**04/2015 – 09/2015**

Research fellow

NanoBioLab, Dipartimento di Biotecnologie e Bioscienze, Università degli Studi Milano-Bicocca

Main research projects:

1. In the project "Development of nanoparticles as carrier of peptides for oral administration", I was involved in synthesis and characterization of insulin loaded nanoparticles, in the production (by extrusion and shepronization process) and coating of a solid dosage form (pellets) containing nanoparticles. At Sacco Hospital (Milan), I set up a rat model of diabetes induction and finally I tested the efficacy of nanoparticles carried on a colon targeting delivery dosage form, in comparison with other formulations.
2. During the project "Cosmetic applications of silver nanoparticles", I've been involved in synthesis and characterization of silver nanoparticles. Subsequently, I've set up and tested the antibacterial activity of the nanoparticles on *E.coli* and *S.aureus*.
3. Recently, I've focused my research on the development of non-viral gene delivery system for triple breast negative cancer treatment. Particularly, I was responsible of the synthesis, biofunctionalization and characterization of lipid protamine DNA nanoparticles encapsulating a plasmid DNA coding for a toxin. Then, in collaboration with other institutions, I assessed *in vitro* the nanocomplex functionality and I performed the biodistribution and the activity experiments in tumor-bearing mice. Now I still dedicate to this project by optimizing the biofunctionalization of the same toxin onto iron oxide nanoparticles surface and performing several *in vitro* tests.
4. Currently, I am involved in a project concerning the role of surfactant protein D (SP-D) in CoViD-19. In particular, I am conducting several *in vitro* studies for exploring the therapeutic potential of this physiological protein against viral infection and how its activity is affected by nanoconjugation to surfactant-based liposomes. In addition, another investigation about the use of SP-D as diagnostic and prognostic agent is ongoing.

**06/2014 – 04/2015**

Internship at Farmacia Gorla

Corso della Vittoria 71, 21042, Caronno Pertusella (VA), Italy

## EDUCATION AND TRAINING

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- 09/2015 – 02/2019** PhD in Materials Science and Nanotechnology at Università degli Studi Milano-Bicocca  
Università degli Studi di Milano-Bicocca  
Thesis title: Nanoparticles-based delivery of biologic drugs: improvements and challenges
- 01/2017 – 07/2017** Visiting scholar at prof. Huang Lab, University of North Carolina, Chapel Hill (NC, US)
- 09/2008 – 03/2014** Master degree in Pharmaceutical Chemistry and Technologies 110/100 CumL  
Facoltà di Scienze del Farmaco, Università degli studi di Milano, Via Festa del Perdono 7, 20122, Milano  
Master thesis: *Development of insulin-containing nanoparticles in pellets formulation for oral administration*  
Principal subjects: Organic chemistry, Pharmaceutical chemistry, Pharmaceutical technologies, Pharmacology-Pharmacotherapy.
- 06/2008** High school Diploma 96/100  
Liceo scientifico Blaise Pascal, Busto Arsizio (VA), Italy

## PERSONAL SKILLS

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- Mother tongue** Italian
- Other languages** English (C1 level)
- Research skills**
- Synthesis of inorganic, polymeric (PEI, PLGA) and lipid nanoparticles using conventional methods and exploiting microfluidic circuits;
  - Nanoparticles characterization (Dynamic Light Scattering and Z potential techniques, Nanoparticles tracking analyser and differential centrifugal sedimentation);
  - Biofunctionalization and drug loading of nanocarriers;
  - UV-vis spectrophotometer and spectrofluorimetric analysis;
  - Chromatography and HPLC analysis;
  - Enzyme-linked immunosorbent assay;
  - Bacteria cells and mammalian cell cultures;
  - Plasmid and protein production;
  - Handling of animal models (mice, rats) – Trainings on basic and aseptic techniques conducted at UNC;
  - Flow cytometry and high content screening analysis;
  - Confocal and hyperspectral microscopy;
  - Electrophoresis (Agarose and SDS-page gels) and Western blot analysis;
  - Pellets and tablets production;
  - Solid dosage form coating process;
- Computer skills** Good command of Microsoft office tools, Prism, FIJI, chem draw and Image J

## ADDITIONAL INFORMATION

## Publications

**Development of an effective tumor-targeted contrast agent for Magnetic Resonance Imaging based on Mn/H-Ferritin nanocomplexes**

C. Tullio<sup>†</sup>, L. Salvioni<sup>†</sup>, M. Bellini, A. Degrassi, L. Fiandra, S Garbujo, R. Rotem, F. Testa, D. Prosperi, M. Colombo  
ACS applied biomaterials and interface.

**Full-length Recombinant hSP-D binds and inhibits SARS-CoV-2**

R. Arroyo, S.N. Grant, M. Colombo, L. Salvioni, F. Corsi, M. Truffi, D. Ottolina, B. Hurst, M. Salzberg, D. Prosperi, P.S. Kingma  
Biomolecules. 2021, 11(8), 1114.  
<https://doi.org/10.3390/biom11081114>

**Impact of Tuning the Surface Charge Distribution on Colloidal Iron Oxide Nanoparticle Toxicity Investigated in Caenorhabditis elegans.**

L. Amigoni<sup>†</sup>, L. Salvioni<sup>†</sup>, B. Sciandrone, M. Giustra, C. Pacini, P. Tortora, D. Prosperi, M. Colombo, M.E. Regonesi.  
Nanomaterials. 2021, 11(6), 1551.  
<https://doi.org/10.3390/nano11061551>

**The emerging role of nanotechnology in skincare**

L. Salvioni, L. Morelli, E. Ochoa, M. Labra, L. Fiandra, L. Palugan, D. Prosperi, M. Colombo  
Advances in Colloid and Interface Science. 2021, in press  
<https://doi.org/10.1016/j.cis.2021.102437>

**The Role of Polymeric Coatings for a Safe-by-Design Development of Biomedical Gold Nanoparticles Assessed in Zebrafish Embryo**

P. Floris, S. Garbujo, G. Rolla, M. Giustra, L. Salvioni, T. Catelani, M. Colombo, P. Mantecca, L. Fiandra  
International Journal of Nanomedicine. 2021, 16, pp 1943–1960.  
<https://doi.org/10.2147/IJN.S276033>

**99mTc-Radiolabeled Silica Nanocarriers for Targeted Detection and Treatment of HER2-Positive Breast Cancer**

P. Rainone, A. De Palma, F. Sudati, V. Roffia, V. Rigamonti, L. Salvioni, M. Colombo, M. Ripamonti, A.E. Spinelli, D. Mazza, P. Mauri, R.M. Moresco, D. Prosperi, S. Belloli  
International Journal of Nanomedicine. 2021, 16, pp 1943–1960.  
<https://doi.org/10.2147/IJN.S276033>

**The Vault Nanoparticle: A Gigantic Ribonucleoprotein Assembly Involved in Diverse Physiological and Pathological Phenomena and an Ideal Nanovector for Drug Delivery and Therapy**

G. Frascotti, E. Galbiati, M. Mazzucchelli, M. Pozzi, L. Salvioni, J. Vertemara, P. Tortora  
Cancers (Basel). 13(4):707. <https://doi.org/10.3390/cancers13040707>

**H-Ferritin Nanoparticle-Mediated Delivery of Antibodies across a BBB in vitro model for Treatment of Brain Malignancies**

M.A. Rizzuto, R. Dal Magro, L. Barbieri, L. Pandolfi, A. Sguazzini-Viscontini, M. Truffi, L. Salvioni, F. Corsi, M. Colombo, F. Re and D. Prosperi  
Biomaterials Science. 2021 2021,9, 2032-2042.  
<https://doi.org/10.1039/D0BM01726D>

**Functionalization of colloidal nanoparticles with a discrete number of**

### **ligands based on a "HALO-bioclick" reaction**

S. Garbujo, E. Galbiati, L. Salvioni, M. Mazzucchelli, G. Frascotti, X. Sun, S. Megahed, N. Feliu, D. Prospero, W.J. Parak, M. Colombo  
Chemical Communications. 2020,56, pp. 11398-11401.  
<https://doi.org/10.1039/D0CC04355A>

### **Modeling the interaction of amphiphilic polymer nanoparticles with biomembranes to guide rational design of drug delivery systems**

R. Rotem, A. Micale, M.A.Rizzuto, M. Migliavacca, M.Giustra, L. Salvioni, F. Tasin, D. Prospero, M. Colombo  
Colloids and Surfaces B: Biointerfaces. 196, 111366.  
<https://doi.org/10.1016/j.colsurfb.2020.111366>

### **Colloidal polymer-coated Zn-doped iron oxide nanoparticles with high relaxivity and specific absorption rate for efficient magnetic resonance imaging and magnetic hyperthermia**

P. Das, L. Salvioni, M. Malatesta, F. Vurro, S. Mannucci, M. Gerosa, M.A. Rizzuto, C. Tullio, A. Degrassi, M. Colombo, A.M. Ferretti, A. Ponti, L. Calderan, D. Prospero  
Journal of Colloid and Interface Science. 2020, 579, pp. 186-194.  
<https://doi.org/10.1016/j.jcis.2020.05.119>

### **Engineered Ferritin Nanoparticles for the Bioluminescence Tracking of Nanodrug Delivery in Cancer**

M. Bellini, B. Riva, V. Tinelli, M.A. Rizzuto, L. Salvioni, M. Colombo, F. Mingozi, A. Visioli, L. Marongiu, G. Frascotti, M.S. Christodoulou, D. Passarella, D. Prospero, L. Fiandra  
Small. 2020, 16 (39). <https://doi.org/10.1002/sml.202001450>

### **Nanoparticle-Mediated Suicide Gene Therapy for Triple Negative Breast Cancer Treatment**

L. Salvioni, S. Zuppone, F. Andreatta, M. Monieri, S. Mazzucchelli, C. Di Carlo, L. Morelli, C. Cordiglieri, L. Donnici, R. De Francesco, F. Corsi, D. Prospero, R. Vago, M. Colombo  
Advanced Therapeutics. 2020, 3(8). <https://doi.org/10.1002/adtp.202000007>

### **Monitoring the Fate of Orally Administered PLGA Nanoformulation for Local Delivery of Therapeutic Drugs**

L. Morelli, S. Gimondi, M. Sevieri, L. Salvioni, M. Guizzetti, B. Colzani, L. Palugan, A. Foppoli, L. Talamini, L. Morosi, M. Zucchetti, M.B. Violatto, L. Russo, M. Salmona, D. Prospero, M. Colombo, P. Bigini.  
Pharmaceutics. 2019, 11(12). <https://doi.org/10.3390/pharmaceutics11120658>

### **Thirty Years of Cancer Nanomedicine: Success, Frustration, and Hope**

L. Salvioni, M.A. Rizzuto, J.A. Bertolini, L. Pandolfi, M. Colombo, D. Prospero.  
Cancers (Basel). 2019, 11(12). <https://doi.org/10.3390/cancers11121855>

### **Are nanotechnological approaches the future of treating inflammatory diseases?**

M.A. Rizzuto, L. Salvioni, R. Rotem, M. Colombo, I. Zanoni, F. Granucci, D. Prospero.  
Nanomedicine. 2019, 14, 2379–2390. <https://doi.org/10.2217/nnm-2019-0159>

### **Negatively charged silver nanoparticles with potent antibacterial activity and reduced toxicity for pharmaceutical preparations**

L. Salvioni, E. Galbiati, V. Collico, G. Alessio, S. Avvakumova, F. Corsi, P. Tortora, D. Prospero, M. Colombo.  
International Journal of Nanomedicine. 2017, 12, 2517–2530.  
<https://doi.org/10.2147/IJN.S127799>

### **Oral delivery of insulin via polyethylene imine-based nanoparticles for colonic release allows glycemic control in diabetic rats**

L. Salvioni, L. Fiandra, M.D. Del Curto, S. Mazzucchelli, R. Allevi, M. Truffi, L. Sorrentino, B. Santini, M. Cerea, L. Palugan, F. Corsi, M. Colombo.

Pharmacological Research. 2016, 110, 122–130,  
<https://doi.org/10.1016/j.phrs.2016.05.016>

Selected Conferences  
Workshops/Congress

20th-22th October 2021, Milano

Conference - Nanomed 2021,

**Oral presentation:** *Development of an effective tumor-targeted contrast agent for Magnetic Resonance Imaging based on Mn/H-Ferritin nanocomplexes*

06th-08th October 2020

52° congresso nazionale SIBioC – medicina di laboratorio

22th-24th September 2019, Cambridge, MA, USA

Congress - 17th International Nanomedicine & Drug Delivery Symposium (nanoDDS'19)

**Poster presentation:** *Nanoparticle-mediated suicide gene therapy for triple negative breast cancer treatment*

7th July 2019, Torino

Workshop – New frontiers in cancer immunotherapy

11th-12th June 2019, Roma

Conference and Exhibition - Nanoinnovation

**Oral presentation:** *Nanoparticle-mediated suicide gene therapy for triple negative breast cancer treatment*

2nd-3rd May 2019, Milano

Workshop – Nanomedicine 2019

**Poster presentation:** *Nanoparticle-mediated suicide gene therapy for triple negative breast cancer treatment*

10th-11th July 2018, Milano

Workshop - Interaction between nanomaterials and the immune system: medical exploitations and safety issues

21th -23th March 2018, Oxford

Spring School of European society of gene and cell therapy

06th February 2018, Milano

Workshop - Imaging from basic science to clinical applications

25th October 2017, Milano

Workshop - Formulation challenges of protein drugs

21th -23th September 2016, Viterbo

Conference - Nanomedicine

**Poster presentation:** *Oral nanocarrier for Insulin Colon Delivery*

05th -08th July 2016, Thessaloniki

Nanotechnology, 13th International Conference on Nanoscience and Nanotechnology

**Poster presentation:** *Oral nanocarrier for Insulin Colon Delivery*

12th May 2015, Milano

Progetti "match making innovazione" e "life sciences", Opportunità Tecnologiche Nel

Settore Della Cosmeceutica, Assolombarda

**Oral communication:** Cosmetic Applications Of Silver Nanoparticles

12th -14th November 2015, Naples

Congress - Micro and Nanotechnologies to Overcome Biological Barriers

April-May 2014, Dublin

English course at Emerald school