

Curriculum Vitae Silvia Tortorella

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Current Position (from October 2018)

Post-Doctoral Fellow

Institution: **Università degli Studi di Bologna**

Department: Chimica Industriale "Toso Montanari"

Supervisor: Prof. Mauro Comes Franchini

Address: Viale del Risorgimento 4, Bologna (Italy)

Project involved: Advanced materials for 3D printing and application in Internet of things

Main tasks: synthesis and characterization of smart nanomaterials/nanoparticles for nanomedicine; soft hydrogel formulation for biomedical purpose; 3D printing and bioprinting.



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Education and training

October 2016-July 2018 - Coordinated and Continuous Cooperation

Company: Farmacia del Pavaglione s.r.l. (Bologna)

Division: Quality Assurance

Main tasks: HPLC analysis of cannabinoids and proteins; scientific communications on pharmaceutical products; development of new pharmaceutical formulation; drafting of Standard Operating Procedures.



May 2015-September 2016 Post-Doctoral Fellow

Institution: CNR (National Council of Research) of Bologna

Laboratory: Institute for Organic Synthesis and Photoreactivity (ISOF)

BioFreeRadicals group (Dr. Carla Ferreri).

Project involved: Studi su forme di aggregazione e formulazioni a rilascio ritardato di somatostatina - Forms of aggregation and drug-delivery formulations of somatostatin.

Funded by A.I.A.N. - Modena - Fondazione Di Bella



2012 - April 2015

PhD in Chemistry - Università degli Studi di Bologna UNIBO

Institution: CNR - Institute of nano-structured materials (ISMN)

Title of the thesis: "Patterning soft matter for cell culturing"

Project involved: Implantable Organic Nano Electronic (iOne) FP7 project
Intelligent Cell Surface (EuroBioSAS)

Supervisor: Prof. Fabio Biscarini. Co-Supervisor: Dr. Francesco Valle, Dr. Pier Paolo Greco



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



2010-2011

Post-graduated Internship (Forensic Science)

Institution: CNR - Istituto di nano-strutturati materiali (ISMN)

Project involved: Chemical-physical processes of biological material characterized by high spatial resolution - Nanotechnology for forensic science.

Supervisor: Dr. Francesco Valle



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2009-2011

Second Level Post-graduated Degree in Forensic Science
Università degli Studi di Parma (UNIPR)

2006-2009

M. Sc in Medical Biotechnology (110/110 cum laude)
Università degli Studi di Bologna UNIBO -Universidad Autonoma de Madrid

2003 - 2006

B. Sc in Biotechnology
Università degli Studi di Bologna UNIBO



Research experience/Technical skills

Fabrication and surface characterization of **soft materials (bio-polymers)** and **patterned functionalized substrates** for cell growth. Analysis and characterization of cell cultures.

Bioinks chemical development and deposition by **extrusion bioprinting** for the fabrication of **bio-based hydrogels**, even loaded/coated with **nanoparticles**, for **biomedical applications**. **Surface coating treatments**.

Materials: Bio-polymers as PLGA Poly (Lactic co-glycolic acid) and PHB (Polyhydroxybutyrate). Glass and silicon wafer patterned with adhesive and pro-fouling proteins. Hydrogels 100% natural, as alginate, gelatin, pectin, chitosan, fibrin.

Fabrication/Patterning Techniques: Extrusion Bioprinting; Laser Assisted Bioprinting; Laser Ablation; Micro and nano-patterning; Soft-lithography; Digital Light Processing (DLP) printing.

Surface Characterization: Atomic Force Microscopy (AFM); Scanning and Transmission Electron Microscopy (SEM and TEM); Dynamic Light Scattering (DLS); Contact angle measurements; Optical Microscopy.

Cell cultures characterization: Immunofluorescence assays. Cell viability tests.

Development and characterization of a new pharmaceutical liposomal formulation for the drug delivery of somatostatin. Free radical reactivity of somatostatin interacting with cell membranes.

Encapsulation Technique: Thin film hydration for liposomes preparation.

Liposomes Characterization: DLS; Cytoviva Hyperspectral Microscopy; UV Spectroscopy, Circular Dichroism.

Free radicals chemistry analysis: Bio-mimicking models. Lipid extraction. Gas-cromatography (GC).

Other skills: High Performance Liquid Chromatography (HPLC); UV/Vis, IR, Raman spectroscopy; electrical recording in vivo (rats); immunohistochemical assay; Atomic absorption (AA) and Nuclear magnetic resonance (NMR) spectroscopy.

Research Publications

S. Tortorella, M. Maturi, F. Dapporto, C. Spanu, L. Sambri, M. Comes Franchini, M. Chiariello, E. Locatelli "Surface Modification of Nanocellulose through Carbamate Link for a Selective Release of Chemotherapeutics" *submitted*

S. Tortorella, F. Valle, A. Scala, A. Cordaro, M. Barbalinardo, F. Biscarini, A. Mazzaglia "Amphiphilic cationic cyclodextrin nanovesicles: a versatile cue for guiding cell adhesion" *submitted*

M. Maturi, C. Pulignani, E. Locatelli, V. Vetri Buratti, **S. Tortorella**, L. Sambri, M. Comes Franchini "Phosphorescent Bio-Based Resin for Digital Light Processing (DLP) 3D-Printing" *in preparation*

S. Tortorella, V. Vetri Buratti, M. Maturi, L. Sambri, M. Comes Franchini, E. Locatelli "Surface modified nano cellulose for application in biomedical engineering and nanomedicine: a review" *in preparation*

A. V. Larocca, G. Toniolo, **S. Tortorella**, M. G. Krokidis, G. Menounou, G. Di Bella, C. Chatgililoglu, C. Ferreri "The Entrapment of Somatostatin in a Lipid Formulation: retarded Release and Free Radical Reactivity" *Molecules* 2019, 24, 3085; doi:10.3390/molecules24173085

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Ferri C, Masi A, Sansone A, Giacometti G, Larocca AV, Menounou G, Scanferlato R, **Tortorella S**, Rota D, Conti M, Deplano S, Louka M, Maranini AR, Salati A, Sunda V, Chatgialoglu C. "Fatty Acids in Membranes as Homeostatic, Metabolic and Nutritional Biomarkers: Recent Advancements in Analytics and Diagnostics" *Diagnostics (Basel)*. 2016 Dec 22;7(1). pii: E1. doi: 10.3390/diagnostics7010001.

S. Desbief, M. di Lauro, S. Casalini, D. Guerin, **S. Tortorella**, M. Barbalinardo, A. Kyndiah, M. Murgia, T. Cramer, F. Biscarini, D. Vuillaume "Electrolyte-gated organic synapse transistor interfaced with neurons" *Organic Electronics*, vol. 38, pp. 21–28 (2016). doi:10.1016/j.orgel.2016.07.028

A.C. Dumitru, F.M. Espinosa, R. Garcia, G. Foschi, **S. Tortorella**, F. Valle, M. Dallavalle, F. Zerbetto, F. Biscarini "In situ nanomechanical characterization of the early stages of swelling and degradation of a biodegradable polymer" *Nanoscale*, vol. 7, pp. 5403-5410 (2015). doi: 10.1039/c5nr00265f.

Silvia Tortorella, Margarita L. Rodrigo-Angulo, Angel Nunez, Miguel Garzón, "Synaptic interactions between perifornical lateral hypothalamic area, locus coeruleus nucleus and the oral pontine reticular nucleus are implicated in the stage succession during sleep-wakefulness cycle" *Front. Neurosci.*, 19 November (2013). doi:10.3389/fnins.2013.00216

Francesco Valle, Michele Bianchi, **Silvia Tortorella**, Giovanni Pierini, Fabio Biscarini, Marcello D'Elia. "Nanotechnology for forensic sciences: analysis of PDMS replica of the case head of spent cartridges by optical microscopy, SEM and AFM for the ballistic identification of individual characteristic features of firearms". *Forensic Science International* 222 (2012) 288-297. doi: 10.1016/j.forsciint.2012.07.005

G. Pierini, T. Balbi, M. Grillini, D. Mandrioli, M. Predieri, G. Carosielli, F. Ponti, **S. Tortorella**. "Campi elettrici statici: uno studio sperimentale". *Archivio di medicina legale, sociale e criminologica*. Zacchia.

Other Skills/Interests

Communication and Organizational skills:

- Team work, Intercultural and Teaching skills.
- Great communication skills gained by experiencing working in public. Able in listening and public speaking. Writing skills.
- Ability to organize work independently and to pursue the achievement of objectives.
- Artistic sense, creativity.
- Very familiar with laboratory of cell biology and chemistry, ability to adapt to new methods, thanks to the experience in a foreign university and in a company. Versatility and adaptability in other types of laboratories.

Computer skills:

- Microsoft Office, macOS and Linux
- Adobe Photoshop, Vuescan, Adobe Lightroom
- Gwyddion, ImageJ, Igor and Origin
- Clarity Chrome for HPLC and other software for chromatography management
- Knowledge of scientific databases

Language:

Italian: mother tongue

English: C1 Listening/Reading - C1 Speaking/Writing

Spanish: C1 Listening/Reading - B2 Speaking/Writing

Common European Framework of Reference for Languages

Hobbies: Acting (Improv Theater), Flamenco dancing, Music, Crossfit, Snorkeling/diving and SUPing, Photography, Traveling, Reading