



Dalila Iannotta

Born in Gaeta (LT) – Italy

Master's Degree cum laude in Molecular and Cellular Biotechnology at the University of L'Aquila – Italy.

2016 – 2017, Internship in Neurobiology and cellular Biology laboratory, Department of Life, Health and Environmental Sciences, University of L'Aquila – Italy.

2017 – 2018, Visiting Research Student in at University of Lancaster, U.K.



Luisa Di Marzio

CHIM / 09 Farmaceutico

Research field: Niosomes, Colloidal Nanomedicine



Joe E. Wolfram

Assistant Professor and Director of Extracellular Vesicles Laboratory at Jacksonville, Florida, USA ; Co-Sciences Training Program, Mayo School of Biomedical Sciences, Internship in Neuroscience and Jacksonville, Florida, USA ; Chair, Oncology Network Education and Group, National Cancer Institute,



Agata Papa

Lab Manager AlfatestLab

Company mission: ALFA TESTlab includes experts in particles and materials characterization. ALFA TESTlab offers contract analytical services according to ISO 17025 and based on a unique set of analytical techniques, complementary to each other, both for materials science and biosciences

Hybrid nanocarrier library-based biomaterials for therapeutic applications

- **Aim of the project:** The aim of this project is the synthesis, characterization and application of hybrid nanocarriers based on the combination of biological extracellular vesicles, originated from equine milks and/or other biological fluids originated from body tissues, and hybrid nanocarriers based-liposomes showing discoidal shapes and sizes similar to exosomes. Hybrid nanocarriers combined with biological extracellular vesicles are used to delivery chemotherapeutic drugs and other bioactive compounds for treatment of liver disease and regeneration of residual health tissue. This research activity is integrated with the mission and scope of Red Biotechnology and designs an innovative nanocarriers for the cure of liver pathologies, improves the quality of life of patients, decreases the healthcare costs of National healthcare system, and offers a better treatment options for patients with liver diseases. The access to the advanced technologies of May Clinic provides the opportunity to collect and characterize extracellular vesicles, collected from biological fluids and equine milks, integrates the extracellular vesicles in hybrid nanocarriers, and tests the resulting innovative nanotechnology products in suitable animal models..
- **Industrial impact of the project:** The access to the advanced technology for physicochemical characterization of bio- and nanomaterials, as well as nanoparticles of AlfatestLab allows the PhD student the opportunity to fine and deeply characterize the composition, surface properties, material composition and ultra-structure of hybrid nanocarriers. The PhD student acquires the knowledge for the technology transfer, commercialization, data base collection, and scale-up of hybrid nanoparticles.

The Research products will be enhanced through dissemination and technology transfer activities:

- 1) scientific publications, poster and oral presentations in national and international conferences, communication of results in public and social events, dissemination of results in the European research night's; drafting and public discussion of the doctoral thesis;
- 2) patents, development of data base, drafting of regulatory documents, development and/or production of hybrid nanocarriers, built up of academic spin-off.



- Co-projecting: AlfatesLab is co-leader in the development of the Research activities and training of the PON Research and Innovation PhD programme. AlfatestLab supports the activities of the PhD students for the fine and deeply physicochemical characterization of bio- and nano- materials making hybrid nanocarriers and the characterization of resulting nanomedicines. The advanced equipments of AlfatestLab allows to characterize the surface properties, compositions, self-assembling, and ultrastructure of hybrid nanocarriers, as well as, collect the data and regulatory documents for their technology transfer, commercialization and scale-up.
- Training: AlfatestLab provides the advanced trainings to the PhD student for the use of equipments available in its laboratory, the collection and the analysis of data. Furthermore, Alfatest Lab, trains the basic and advanced knowledge to collect data and documents for technology transfer, scale-up and commercialization of hybrid nanocarriers according to the guidelines of International regulatory agencies, such as European Agency of Medicine (EMA) and Food and Drug Administration (FDA).
- Research: AlfatestLab supports the research activities of the Academic institutions for for the fine and deeply physicochemical characterization of bio- and nano- materials making hybrid nanocarriers and the characterization of resulting nanomedicines, the collection of regulatory documents, and data base analysis. This collaboration results in the publications of Abstract communications at National and International conferences and shall result in the next mounts to the submission of a review and research paper in peer-reviewed international JCR journals.
- Technological transfer: alfatestLab should like to develop, in collaboration with University of Chieti/ Teramo and Mayo Clinic, the preliminary data for the submission of a patent and the built-up of an Academic spin-off.



Publications

- Conventional nanosized drug delivery systems for cancer applications (2020) (Cristian Vergallo,¹, Muhammad Nadeem Hafeez,¹, **Dalila Iannotta**, Helder A. Santos, Nicola D'Avanzo, Luciana Dini, Felisa Cilurzo, Massimo Fresta, **Luisa Di Marzio**, Celia Christian*) Book Chapter: Nanomedicine for Cancer Therapy; Editor Helder A. Santos, Flavia Fontaa, Springer International Publisher, Switzerland. Accepted for publication. ¹Authors contributed equally; *Corresponding author.
- Ammonium glycyrrhizate skin delivery from ultradeformable liposomes: a novel use as an anti-inflammatory agent in topical drug delivery (2020) (Antonella Barone, Maria Chiara Cristiano, Felisa Cilurzo, Marcello Locatelli, **Dalila Iannotta**, **Luisa Di Marzio**, Christian Celia, Donatella Paolino) Submitted for publication in Colloids and Surfaces B: Biointerfaces.



Scientific meeting

- THE 1ST INTERNATIONAL NORTHERN-SOUTHERN EUROPE WORKSHOP IN NANOMEDICINE, UNIVERSITY “G: d’ANNUNZIO” CHIETI-PESCARA Chieti (CH), Italy, 15-17, January, 2020;
- CELLULAR AND MOLECULAR PhD DAY, CAST – UNIVERSITY “G: d’ANNUNZIO” CHIETI-PESCARA, Chieti (CH), Italy, 21, February, 2020.
- CELLULAR AND MOLECULAR PhD DAY, UNIVERSITY of TERAMO, Teramo (TE), Italy, 15, February, 2019;
- CHARACTERIZATION OF COLLOIDAL NANOCARRIERS – 19th ADVANCES COURSE IN PHARMACEUTICAL TECHNOLOGY; Soverato (CZ), Italy, 9-12, September, 2019;
- TECNOLOGIA FARMACEUTICA: POSSIBILE INTEGRAZIONE DI SAPERI – 2° CONVEGNO NAZIONALE SOCIETA’ CHIMICA ITALIANA, DIVISIONE DI TECNOLOGIA FARMACEUTICA; Soverato (CZ), Italy, 9-12, September, 2019;
- A FOCUS ON TENDON FROM RESEARCH TO TRANSLATION – VII SCIENTIFIC WORKSHOP I.S.M.U.L.T., UNIVERSITY of TERAMO, Teramo (TE), Italy, 17 October, 2019;
- COURSE “MICROFLUIDIC IN NANOMEDICINE”, UNIVERSITY “G: d’ANNUNZIO” CHIETI-PESCARA Chieti (CH), Italy, November – December, 2019;
- GLI ANIMALI UTILIZZATI A FINI SCIENTIFICI. PER UN APPROCCIO ETICO ALLA SPERIMENTAZIONE CIVIL, Teramo (TE), Italy, 10, May, 2019;
- NUTRACEUTICI, I FARMACI PER LE PERSONE SANE UNIVERSITY “G: d’ANNUNZIO” CHIETI-PESCARA Chieti (CH), Italy, 21, May, 2019;
- NANOCLOCKS AS ADVANCED PHARMACEUTICAL EXCIPIENTS UNIVERSITY “LA SAPIENZA”, Rome, Italy, 19, July, 2019;
- NANOINNOVATION 2019 UNIVERSITY “LA SAPIENZA”, Rome, Italy, 11-14, June, 2019;
- INVENTARI DELLE EMISSIONI DI GAS SERRA NELLE UNIVERSITÀ ITALIANE UNIVERSITY “G: d’ANNUNZIO” CHIETI-PESCARA, Chieti (CH), Italy, 22, November, 2019;
- DISCOID NANOPARTICLES: Ph-DEPENDENT SIZE RESPONSE. **D. Iannotta, C. Celia, J. Wolfram, A. Papa, L. Di Marzio**. Cellular and Molecular PhD Day, Chieti (CH), Italy, 21, February, 2020;
- HYBRID NANOCARRIER LIBRARY BASED BIOMATERIALS FOR THERAPEUTIC APPLICATIONS. **D. Iannotta, C. Celia, J. Wolfram, A. Papa, L. Di Marzio**. The 1st International Northern-Southern Europe workshop in Nanomedicine, Chieti (CH), Italy, 15-17, January, 2020;
- HYBRID NANOCARRIER LIBRARY BASED BIOMATERIALS FOR THERAPEUTIC APPLICATIONS. **D. Iannotta, C. Celia, J. Wolfram, A. Papa, L. Di Marzio**. Cellular and Molecular PhD Day, Teramo (TE), Italy, 15, February, 2019.



1. BEST POSTER AWARDS in TRASLATIONAL MEDICINE - “DISCOID NANOPARTICLES: Ph-DEPENDENT SIZE RESPONSE”. **D. Iannotta**. Cellular and Molecular PhD Day, Chieti (CH), Italy, 21, February, 2020.
2. BEST POSTER AWARDS - “HYBRID NANOCARRIER LIBRARY BASED BIOMATERIALS FOR THERAPEUTIC APPLICATIONS”. **D. Iannotta**. The 1st International Northern-Southern Europe workshop in Nanomedicine, Chieti (CH), Italy, 15-17, January, 2020.