



Domenico Franco

Nationality: Italian **Date of birth:** 28/06/1985 **Gender:** Male

☎ **Phone number:** (+39) 3889344636 ✉ **Email address:** dfranco@unime.it

✉ **Email address:** domeut@hotmail.it

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📍 **Home:** Viale delle Rimembranze, 89021 Cinquefrondi (Italy)

WORK EXPERIENCE

Biologist

Laboratory of M&NBit e MVFA, Department of ChiBioFarAm, University of Messina [04/09/2006 – Current]

Address: Messina (Italy)

City: Messina

Country: Italy

Research activity: Nano and Micro-structured systems for antimicrobial, antiadhesive and antibiofilm; Phage display technology; Drug delivery and drug targeting; Raman spectrometry and SERS-Raman; Polyhydroxyalkanoates (PHAs) and Biosurfactants

Internship

Sieroproteine S.r.l. [01/11/2007 – 31/01/2008]

Address: San Floro (Cz) (Italy)

City: Catanzaro

Country: Italy

Formulation, preparation and sterilization of culture media, buffer solutions, fermentation additives; Cultivation of microorganisms for biotechnological use in batch and fed-batch cultures; Fermentation processes in stirred bioreactors and related chemical-biological measurements and controls; Separation of biomass, by means of centrifugation and cross-flow filtration techniques.

Post-Graduate Fellow

Laboratory of M&NBit e MVFA, Department of ChiBioFarAm, University of Messina [21/06/2013 – 20/09/2013]

Address: Messina (Italy)

City: Messina

Country: Italy

Project PON R&C 2007–2013, Polybioplast "Tecnologie e processi per la produzione di teli diversamente funzionalizzati mediante biopolimeri da conversione microbica e di biosurfattanti" (PON01_01377)

PhD in Applied Biology and Experimental Medicine (XXIX cycle)

Laboratory of M&NBit e MVFA, Department of ChiBioFarAm, University of Messina [01/01/2014 – 31/12/2016]

Address: Messina (Italy)

City: Messina

Country: Italy

Use of the Phage-Display for Theranostic Applications and Nanomedicine

Post-Doctoral Fellow

Department of MIFT, University of Messina [01/05/2017 – 31/05/2019]

Address: Messina (Italy)

City: Messina

Country: Italy

Project ABAL, intitled: "*Ricerca della malattia residua della leucemia: sintesi di sistemi biosensoristici nanostrutturati e diagnostica molecolare mediante tecniche di spettroscopia ottica*"

Research Fellow

University of Messina [10/02/2020 – 09/02/2021]

City: Messina

Country: Italy

Monitoring of microbial contaminants in cell cultures of tissue explants from healthy and type 2 Diabetes Mellitus mice

Collaboration agreement for research and development activities

Inova Biomedical Technology (IBMTech) s.r.l. [11/02/2021 – 30/09/2021]

City: Messina

Country: Italy

Antibacterial properties of engineered materials for high-tech products and services based on bio/nano technologies, sensors and innovative analysis methods for applications in the medical sector.

Topic Editor

Applied Sciences (Open Access Journal by MDPI. IF 2.474) [Current]

City: Basel

Country: Switzerland

- Promoting journal at the conferences or scholarly platforms.
- Providing support for themed Special Issues (when the Guest Editors are not available), including pre-checking new submissions, making decisions, giving advice on scientific cases, etc.

Guest Editor

Applied Sciences (Open Access Journal by MDPI. IF 2.474) [25/09/2022]

City: Basel

Country: Switzerland

Link: https://www.mdpi.com/journal/applsci/special_issues/bacteriophages_in_therapy_and_biosensor_devices

Special Issue "Bacteriophages in Therapy and Biosensor Devices"

Reviewer Board

Microorganisms (Open Access Journal by MDPI. IF 4.152) [Current]

City: Basel

Country: Switzerland

- Providing qualified and timely review reports

Guest Editor

Microrganisms (Open Access Journal by MDPI. IF 4.926) [Current]

City: Basel

Country: Switzerland

Link: https://www.mdpi.com/journal/microorganisms/special_issues/antimicrobial_implantation

Fixed-term researcher SC05/I2 SSDBIO/19 (Microbiologia)

Department of ChiBioFarAm, University of Messina [01/10/2021 – Current]

City: Messina

Country: Italy

EDUCATION AND TRAINING

Degree in Biological Sciences

University of Messina [28/07/2010]

Address: Messina (Italy)

Level in EQF: EQF level 6

Master's degree in Biology

University of Messina [13/12/2012]

Address: Messina (Italy)

Level in EQF: EQF level 7

Qualification to practice the profession of biologist

University of Messina [22/07/2013]

Address: Messina (Italy)

Level in EQF: EQF level 3

PhD in Applied Biology and Experimental Medicine

University of Messina [23/01/2017]

Address: Messina (Italy)

Level in EQF: EQF level 8

Utilizzo del Phage Display per Applicazioni Teranostiche e Nanomedicina

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING B1 READING B2 WRITING B2

SPOKEN PRODUCTION B1 SPOKEN INTERACTION B1

French

LISTENING A2 READING B1 WRITING A2

SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

INDICI BIBLIOMETRICI

Scopus

[2014 – Current]

Documents: 41

Citations: 450

h-index: 14

Link: <https://www.scopus.com/authid/detail.uri?authorId=56179877500>

Google Scholar

[2014 – Current]

Documents: 43

Citations: 521

h-index: 14

Link: <https://scholar.google.com/citations?user=kdOXbLQAAAAJ&hl=it&oi=ao>

PUBLICATIONS

[Research Article \(peer-review\)](#)

[2023]

Calabrese G, De Luca G, **Franco D**, Morganti D, Rizzo MG, Bonavita A, Neri G, Fazio E, Neri F, Fazio B, Crea F, Leonardi AA, Faro MJL, Guglielmino S, Conoci S. Structural and antibacterial studies of novel ZnO and Zn_xMn_(1-x)O nanostructured titanium scaffolds for biomedical applications. *Biomater Adv.* 2023; 145:213193.

[Review\(peer-review\)](#)

[2022]

Franco D (first name), Calabrese G, Guglielmino SPP, Conoci S. Metal-Based Nanoparticles: Antibacterial Mechanisms and Biomedical Application. *Microorganisms.* 2022; 10(9):1778.

[Research Article \(peer-review\)](#)

[2022]

Nocito G, Sciuto EL, **Franco D**, Nastasi F, Pulvirenti L, Petralia S, Spinella C, Calabrese G, Guglielmino S, Conoci S. Physicochemical Characterization and Antibacterial Properties of Carbon Dots from Two Mediterranean Olive Solid Waste Cultivars. *Nanomaterials.* 2022; 12(5):885.

[Research Article \(peer-review\)](#)

[2022]

De Plano LM, Silipigni L, Torrisi L, Torrisi A, Cutroneo M, Havranek V, Mackova A, Zammuto V, Gugliandolo C, Rizzo MG, Guglielmino SPP, **Franco D (last name)**. Incidence of Phage Capsid Organization on the Resistance to High Energy Proton Beams. *Applied Sciences.* 2022; 12(3):988.

[Research Article \(peer-review\)](#)

[2022]

Laghi G, **Franco D**, Condorelli GG, Gallerani R, Guglielmino S, Laurita R, Morganti D, Traina F, Conoci S, Gherardi M. Control strategies for atmospheric pressure plasma polymerization of fluorinated silane thin films with antiadhesive properties. *Plasma Process Polym.* 2022;e2200194.

[Research Article \(peer-review\)](#)

[2021]

Torrisi L, Silipigni L, Kovacik L, Lavrentiev V, Cutroneo M, Torrisi A, De Plano LM, **Franco D**, Guglielmino S. M13 Phages Uptake of Gold Nanoparticles for Radio- and Thermal-Therapy and Contrast Imaging Improvement. *Applied Sciences.* 2021; 11(23):11391.

[Research Article \(peer-review\)](#)

[2021]

Calabrese G, **Franco D (first author)**, Petralia S, Monforte F, Condorelli GG, Squarzone S, Traina F, Conoci S. Dual-Functional Nano-Functionalized Titanium Scaffolds to Inhibit Bacterial Growth and Enhance Osteointegration. *Nanomaterials.* 2021; 11(10):2634.

[Research Article \(peer-review\)](#)

[2021]

Bonsignore M, Trusso S, De Pasquale C, Ferlazzo G, Allegra A, Innao V, Musolino C, **Franco D**, Maria De Plano L, Guglielmino SPP, Neri F, Fazio E. A multivariate analysis of Multiple Myeloma subtype plasma cells. *Spectrochim Acta A Mol Biomol Spectrosc.* 2021; 258:119813.

[Research Article \(peer-review\)](#)

[2021]

De Plano LM, **Franco D* (corresponding author)**, Bonsignore M, Fazio E, Trusso S, Allegra A, Musolino C, Cavaliere R, Ferlazzo G, Neri F, Guglielmino SPP. Phage-Phenotype Imaging of Myeloma Plasma Cells by Phage Display. *Applied Sciences*. 2021; 11(17):7910.

[Research Article \(peer-review\)](#)

[2021]

L. M. De Plano, **D. Franco* (corresponding author)**, M.G. Rizzo, V. Zammuto, C. Gugliandolo, L. Silipigni, L. Torrisi, S.P.P. Guglielmino. Role of phage capsid in the resistance to uv-c radiations. *International Journal of Molecular Sciences*, 22(7) (2021), 3408.

[Research Article \(peer-review\)](#)

[2021]

M.G. Rizzo, S. Carnazza, L.M. De Plano, **D. Franco**, M.S. Nicolò, V. Zammuto, G. Calabrese, C. Gugliandolo, S. Conoci, S.P.P. Guglielmino. Rapid detection of bacterial pathogens in blood through engineered phages-beads and integrated Real-Time PCR into MicroChip. *Sensors and Actuators, B: Chemical*, 329 (2021), 129227.

[Research Article \(peer-review\)](#)

[2021]

D. Franco (first author), G. Calabrese, S. Petralia, G. Neri, C. Corsaro, L. Forte, S. Squarzone, S.P.P. Guglielmino, F. Traina, E. Fazio, S. Conoci. Antimicrobial effect and cytotoxic evaluation of MG-doped hydroxyapatite functionalized with au-nano rods. *Molecules*, 26(4) (2021), 1099.

[Research Article \(peer-review\)](#)

[2021]

G. Calabrese, S. Petralia, **D. Franco (first author)**, G. Nocito, C. Fabbi, L. Forte, S. Guglielmino, S. Squarzone, F. Traina, S. Conoci. A New Ag-Nanostructured Hydroxyapatite Porous Scaffold: Antibacterial Effect and Cytotoxicity Study. *Materials Science and Engineering: C* 118 (2021), 111394.

[Research Article \(peer-review\)](#)

[2020]

V. Zammuto, M.G. Rizzo, L.M. De Plano, **D. Franco**, S. Guglielmino, M.T. Caccamo, S. Magazù, A. Fujimori, A. Lo Giudice, Mauro Guglielmin, Kevin Roderick McAlpin, Ralf Moeller and Concetta Gugliandolo. Effects of Heavy Ion Particle Irradiation on Spore Germination of *Bacillus* spp. from Extremely Hot and Cold Environments. *Life* 10(11) (2020), 264.

[Research Article \(peer-review\)](#)

[2020]

R. Zagami, **D. Franco**, J. D. Pipkin, V. Antle, L. De Plano, S. Patanè, S. Guglielmino, L. Monsù Scolaro, A. Mazzaglia. Sulfobutylether- β -cyclodextrin/5,10,15,20-tetrakis(1-methylpyridinium-4-yl)porphine nanoassemblies with sustained antimicrobial phototherapeutic action. *International journal of pharmaceutics* 585 (2020), 119487.

[Review \(peer-review\)](#)

[2020]

M.G. Rizzo, L.M. De Plano, **D. Franco* (last and corresponding author)**. Regulation of filamentation by bacteria and its impact on the productivity of compounds in biotechnological processes. *Applied Microbiology and Biotechnology* 104(11) (2020), pp.4631-4642.

[Research Article \(peer-review\)](#)

[2020]

L.M. De Plano, S. Carnazza, **D. Franco**, M.G. Rizzo, S. Conoci, S. Petralia, A. Nicoletti, M. Zappia, M. Campolo, E. Esposito, S. Cuzzocrea, S. Guglielmino. Innovative IgG Biomarkers Based on Phage Display Microbial Amyloid Mimotope for State and Stage Diagnosis in Alzheimer's Disease. *ACS chemical neuroscience* 11(7) (2020), pp. 1013-1026.

[Research Article \(peer-review\)](#)

[2020]

D. Franco (first author), L.M. De Plano, M.G. Rizzo, S. Scibilia, G. Lentini, E. Fazio, F. Neri, S.P.P. Guglielmino, A.M. Mezzasalma. Bio-hybrid gold nanoparticles as SERS probe for rapid bacteria cell identification. *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy*, 224(5) (2020), 117394.

[Research Article \(peer-review\)](#)

[2020]

G. Calabrese, S. Petralia, C. Fabbi, S. Forte, **D. Franco**, S. Guglielmino, E. Esposito, S. Cuzzocrea, F. Traina, S. Conoci. Au, Pd and maghemite nanofunctionalized hydroxyapatite scaffolds for bone regeneration. *Regenerative Biomaterials* 7(5) (2020), pp. 461-465.

[Research Article \(peer-review\)](#)

[2020]

E. Esposito, M. Campolo, G. Casili, M. Lanza, **D. Franco**, E. Fazio, A. Filippone, I. Paterniti, S. Cuzzocrea. Efficacy of Xyloglucan against *Escherichia coli* Extraintestinal Urinary Tract Infection: An in vivo Study. *Microb Physiol* (2020), pp.1-11

[Research Article \(peer-review\)](#)

[2019]

M.G. Rizzo, M.S. Nicolò, **D. Franco* (corresponding author)**, L.M. De Plano, V. Chines, F. Moscato, G. Crea, C. Gugliandolo, S.P.P. Guglielmino. Glutamine-induced filamentous cells of *Pseudomonas mediterranea* CFBP-5447T as producers of PHAs. *Applied Microbiology and Biotechnology* 103 (2019), pp. 9057–9066.

[Research Article \(peer-review\)](#)

[2019]

L. M. De Plano, E. Fazio, M. G. Rizzo, **D. Franco**, S. Carnazza, S. Trusso, F. Neri, S.P.P. Guglielmino. Phage-based assay for rapid detection of bacterial pathogens in blood by Raman spectroscopy. *Journal of Immunological Methods* (2019). *Journal of Immunological Methods* 465 (2019), pp. 45-52.

[Conference Proceedings](#)

[2019]

M.G. Rizzo, L. M. De Plano, S. Crea, **D. Franco**, S. Scibilia, A.M. Mezzasalma, S.P.P. Guglielmino. One-step functionalization of silicon nanoparticles with phage probes to identify pathogenic bacteria. *Lecture Notes in Electrical Engineering* 539 (2019), pp. 157-163.

[Conference Proceedings](#)

[2019]

L.M. De Plano, **D. Franco**, M.G. Rizzo, S. Crea, G.M.L. Messina, G. Marletta, S.P.P. Guglielmino. M13 bacteriophages as bioreceptors in biosensor device. *Lecture Notes in Electrical Engineering* 539 (2019), pp. 147-155.

[Conference Proceedings](#)

[2019]

D. Franco (first and corresponding author), L.M. De Plano, M.G. Rizzo, S. Crea, E. Fazio, M. Bonsignore, F. Neri, A. Allegra, C. Musolino, G. Ferlazzo, S. Trusso, S.P.P. Guglielmino. FITC-labelled clone from phage display for direct detection of leukemia cells in blood. *Lecture Notes in Electrical Engineering* 539 (2019), pp. 165-172.

[Research Article \(peer-review\)](#)

[2018]

L.M. De Plano, S. Scibilia, M. G. Rizzo, **D. Franco**, A.M. Mezzasalma, S.P.P. Guglielmino. Direct conjugation of silicon nanoparticles with M13pVIII-engineered proteins to bacteria identification. *Applied Physics A* 124 (2018), 787.

[Research Article \(peer-review\)](#)

[2018]

E. Esposito, M. Campolo, G. Casili, M. Lanza, **D. Franco**, A. Filippone, A.F. Peritore, S. Cuzzocrea. Protective effects of xyloglucan in association with the polysaccharide gelose in an experimental model of gastroenteritis and urinary tract infections. *International Journal of Molecular Sciences* 19(7) (2018), 1844.

[Research Article \(peer-review\)](#)

[2018]

L.M. De Plano, S. Scibilia, M. G. Rizzo, S. Crea, **D. Franco**, A.M. Mezzasalma, S.P.P. Guglielmino. One-step production of phage-silicon nanoparticles by PLAL as fluorescent nanoprobe for cell identification. *Applied Physics A: Materials Science and Processing* 124(3) (2018), 222.

[Research Article \(peer-review\)](#)

[2018]

L. Barbera, L.M. De Plano, **D. Franco**, G. Gattuso, S.P.P. Guglielmino, G. Lando, A. Notti, M.F. Parisi, I. Pisagatti. Antiadhesive and antibacterial properties of pillar[5]arene-based multilayers. *Antiadhesive and antibacterial properties of pillar[5]arene-based multilayers. (Communication) Chemical Communication* 54 (2018), pp. 10203-06.

[Research Article \(peer-review\)](#)

[2017]

D. Franco (first author), S. Trusso, E. Fazio, A. Allegra, C. Musolino, A. Speciale, F. Cimino, A. Saija, F. Neri, M.S. Nicolò, S.P.P. Guglielmino. Raman spectroscopy differentiates between sensitive and resistant multiple myeloma cell lines. *Spectrochim Acta A Mol Biomol Spectrosc.* 187 (2017), pp. 15-22.

[Research Article \(peer-review\)](#)

[2017]

M.G. Rizzo, V. Chines, **D. Franco**, M.S. Nicolò, S.P.P. Guglielmino. The role of glutamine in *Pseudomonas mediterranea* in biotechnological processes. *New Biotechnology* 37 partA (2017), pp. 144-151.

[Research Article \(peer-review\)](#)

[2017]

L. Barbera, **D. Franco**, L.M. De Plano, G. Gattuso, S.P.P. Guglielmino, G. Lentini, N. Manganaro, N. Marino, S. Pappalardo, M.F. Parisi, F. Puntoriero, I. Pisagatti and A. Notti. A water-soluble pillar[5]arene as a new carrier for an old drug. *Organic and Biomolecular Chemistry* 15 (2017), 3192.

[Research Article \(peer-review\)](#)

[2016]

G. Lentini, **D. Franco**, E. Fazio, L.M. De Plano, S. Trusso, S. Carnazza, F. Neri, S.P.P. Guglielmino. Rapid detection of *Pseudomonas aeruginosa* by phage-capture system coupled with micro-Raman spectroscopy. *Vibrational Spectroscopy* 86 (2016), pp. 1-7.

[Research Article \(peer-review\)](#)

[2016]

E. Fazio, S. Trusso, **D. Franco* (corresponding author)**, M.S. Nicolò, A. Allegra, F. Neri, C. Musolino, S.P.P. Guglielmino. A micro-Raman spectroscopic investigation of leukemic U-937 cells in aged cultures. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 159 (2016), pp. 21-29.

[Research Article \(peer-review\)](#)

[2016]

S. Scibilia, G. Lentini, E. Fazio, **D. Franco**, F. Neri, A.M. Mezzasalma, S.P.P. Guglielmino. Self-assembly of silver nanoparticles and bacteriophage. *Sensing and Bio-Sensing Research* 7 (2016), pp. 146-152.

Research Article (peer-review)

[2016]

E. Fazio, M. Santoro, G. Lentini, **D. Franco**, S.P.P. Guglielmino, F. Neri. Iron oxide nanoparticles prepared by laser ablation: synthesis, structural properties and antimicrobial activity. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 490 (2016), pp. 98-103.

Research Article (peer-review)

[2015]

G. Lentini, E. Fazio, F. Calabrese, L.M. De Plano, M. Puliafico, **D. Franco**, M.S. Nicolò, S. Carnazza, S. Trusso, A. Allegra, F. Neri, C. Musolino, S.P.P. Guglielmino. Phage-AgNPs complexas SERS probe for U937 cell identification. *Biosensor and Bioelectronic* 74 (2015), pp. 398-405.

Research Article (peer-review)

[2015]

G. Impallomeni, A. Ballistreri, G. M. Carnemolla, **D. Franco**, S.P.P. Guglielmino. Matrix-assisted laser desorption/ionization time-of-flight vs. fast-atom bombardment and electrospray ionization mass spectrometry in the structural characterization of bacterial poly(3-hydroxyalkanoates). *Rapid Communications in Mass Spectrometry* 29 (2015), pp. 811-820.

Conference Proceedings

[2015]

F. Calabrese, S. Carnazza, L.M. De Plano, G. Lentini, **D. Franco**, S.P.P. Guglielmino. Phage-coated paramagnetic beads as selective and specific capture system for biosensor applications. *AISEM Annual Conference, 2015 XVIII*.

Letter to the Editor

[2015]

A. Allegra, E. Fazio, **D. Franco**, M.S. Nicolò, S. Trusso, F. Neri, C. Musolino, S.P.P. Guglielmino. Low-energy laser irradiation promotes cellular damage in Glucocorticoids-resistant Multiple Myeloma cells. *Leukemia & Lymphoma* 56 (2015), pp. 1514-1516.

Research Article (peer-review)

[2014]

M.S. Nicolò, **D. Franco**, V. Camarda, R. Gullace, M.G. Rizzo, M. Fragalà, G. Licciardello, A.F. Catara, S.P.P. Guglielmino. Integrated Microbial Process for Bioconversion of Crude Glycerol from Biodiesel into Biosurfactants and PHAs. *Chemical Engineering Transactions* 38 (2014), pp. 187-192.

NETWORKS AND MEMBERSHIPS

Member of Centro Universitario di Ricerca per lo studio degli Ambienti Estremi e degli Estremofili

[2018 – Current]

Member of Società Italiana di Fotobiologia (SIFB)

[2019 – Current]

Member of Società Italiana di Microbiologia Generale e Biotecnologie Microbiche (SIMGBM) FEMS Society

[2017 – Current]

PARTICIPATION IN THE ACTIVITIES OF A RESEARCH GROUP

Project PON—BONE++

[10/02/2020 – 09/02/2021]

Collaboration with Dipartimento di Scienza del Farmaco dell'Università di Catania, Fin-Ceramica Faenza, Istituto di Genetica Molecolare dell'Università di Bologna and IRCCS Istituto Ortopedico Rizzoli di Bologna. As also certified

by works <https://doi.org/10.3390/molecules26041099>, <https://doi.org/10.1016/j.msec.2020.111394> e <https://doi.org/10.1093/rb/rbaa033>

Project CyDex Pharmaceuticals/Inc-CNR-ISMN

[25/06/2018 – 14/05/2020]

Collaboration with Istituto per lo Studio dei Materiali Nanostrutturati (CNR-ISMN) c/o Dipartimento di Scienze Chimiche, Biologiche, Farmaceutiche ed Ambientali dell'Università di Messina, within the project "Design of Novel Nanoassemblies Based on CAPTISOL® and Cationic Photosensitizer as Promising Tools in Photodynamic Therapy", funded by a research contract under the Master Research Service Agreement 2018- 2020 tra CyDex Pharmaceuticals, Inc. (San Diego, USA) e CNR-ISMN. As also certified by work <https://doi.org/10.1016/j.ijpharm.2020.119487>

Project ABAL

[01/05/2017 – 31/05/2019]

Collaboration with Dipartimento MIFT dell'Università di Messina ed il CNR-IPCF Istituto per i Processi Chimico-Fisici nell'ambito del Progetto, funded by ABAL Onlus – Messina, titled: "Ricerca della malattia residua della leucemia: sintesi di sistemi biosensoristici nanostrutturati e diagnostica molecolare mediante tecniche di spettroscopia ottica". As also certified by works <http://dx.doi.org/10.1016/j.saa.2016.01.032>, <http://dx.doi.org/10.1016/j.saa.2017.06.020> e https://doi.org/10.1007/978-3-030-04324-7_22

Project Hyppocrates

[01/01/2014 – 31/12/2015]

Collaboration with Distretto Tecnologico Sicilia Micro e Nano Sistemi nell'ambito del Progetto Hyppocrates - Sviluppo di Micro e Nano-Tecnologie e Sistemi Avanzati per la Salute dell'uomo" PON02_00355_2964193 - settore SALUTE DELL'UOMO E BIOTECNOLOGIE.. As also certified by works <https://doi.org/10.1021/acschemneuro.9b00549> e <https://doi.org/10.1016/j.jim.2018.12.004>

Project PolyBioPlast

[21/06/2013 – 31/12/2013]

Collaboration with Science and Technology Park of Sicily (PSTS) within the project PON R&C 2007–2013, Project "PolyBioPlast –Technologies and processes for the production of diversely functionalized sheets based on microbial biopolymers and biosurfactants (PON01_1377)". As also certified by works <https://doi.org/10.1007/s00253-019-10144-2>, <http://dx.doi.org/10.1016/j.nbt.2016.04.005> e <https://doi.org/10.3303/CET1438032>.

BREVETTI

Mimotopi Conformazionali per Il Rilevamento Di Anticorpi Specifici

Inventors: Guglielmino Salvatore, De Plano Laura Maria, Carnazza Santina, **Franco Domenico**, Nicoletti Alessandra, Zappia Mario, Conoci Sabrina, Petralia Salvo, IT 102016000120204 (28-11-2016) , WO2018096512 (A1) (2018-05-31)

Link: <https://data.epo.org/gpi/EP3545312A1-CONFORMATIONAL-MIMOTOPES-FOR-DETECTING-SPECIFIC-ANTIBODIES>

Array di fagi esponenti peptidi mimotopici conformazionali della b-amiloide per la diagnosi sierologica degli stadi patologici della malattia di Alzheimer

Inventors: Prof. Salvatore Guglielmino, Dott.ssa Maria Giovanna Rizzo, **Dott. Domenico Franco**, Dott.ssa Laura Maria De Plano, Prof.ssa Sabrina Conoci, Prof. Salvatore Cuzzocrea, Prof.ssa Emanuela Esposito, Dott.ssa Irene Paterniti, Dott.ssa Michela Campolo.

Patent application and extension abroad for Invention in Italy N. 102022000001400, 27/01/2022, titled: "Metodo di diagnosi della malattia di Alzheimer" a nome: UNIVERSITÀ DEGLI STUDI DI MESSINA. Lettera-contratto Rep. n. 250/2021, prot n. 40652 del 24/03/2021 – CIG Z1D30D390C - CUP J47H21000690005

Metodo di realizzazione di una piattaforma di dendriti di argento per applicazioni biomedicali

Inventors: Prof.ssa Sabrina Conoci, Dott.ssa Alessia Irrera, Prof. Salvatore Guglielmino, Prof.ssa Giovanna Calabrese, Dott.ssa Maria Giovanna Rizzo, **Dott. Domenico Franco**, Dott. Emanuele Luigi Sciuto, Dott. Antonio Alessio Leonardi.

Patent application and extension abroad for Invention in Italy N. 102022000020145, 30/09/2022, titled: "Metodo di realizzazione di una piattaforma di dendriti di argento per applicazioni biomedicali"

ORGANIZATION OR PARTICIPATION AS A SPEAKER AT SCIENTIFIC CONFERENCES

Oral Presentation

[23/06/2021 – 24/06/2021]

Antimicrobial Photodynamic Action of Photosensitising Nanoassemblies based on Cyclodextrins. SIFB Meeting on Photobiology. 23rd-24th June 2021

Poster Presentations

[19/06/2019 – 21/06/2019]

Fluorescent probes from phage display for myeloma molecular mapping. Annual Congress of the Italian Society of Photobiology – SIFB2019. Bologna 19-21 June 2019.

Poster Presentation

[24/09/2018 – 28/09/2018]

Phage-based capture and concentrating system for single step detection of pathogens in liquid samples. 1st NanoBio Conference. Creta 24-28 September 2018.

Oral Presentation

[21/02/2018 – 23/02/2018]

FITC-labelled clone from phage display for direct detection of leukemia cells in blood. 4° Convegno Nazionale Sensori (CNS). Catania 21-23 Febbraio 2018.

Poster Presentation

[17/09/2017 – 20/09/2017]

Filamentation as evolutive strategy in *Pseudomonas mediterranea*. Microbiology, XXXII SIMGBM Congress. Palermo 17-20 September 2017.

Poster Presentation

[01/06/2014 – 03/06/2014]

The usage of Raman spectroscopy in the identification of cellular systems. Workshop on Biomaterials and Their Interactions with Biological and Model Membranes, Salou 1-3 June 2014.

CO-AUTHOR OF ABSTRACTS AT SCIENTIFIC CONFERENCES

ARRAY OF β -AMYLOID CONFORMATIONAL MIMOTOPIC PEPTIDES FOR THE SEROLOGICAL DIAGNOSIS OF ALZHEIMER'S DISEASE STAGES

[2022]

M.G. Rizzo, L.M. De Plano, **D. Franco**, M.S. Nicolò, N. Palermo, G. Calabrese, S. Guglielmino and S. Conoci. AISEM 2022

Photosensitising Nanoassemblies based on Cyclodextrin/Porphyrinoid Complexes with Antimicrobial Photodynamic Action

[10/06/2022 – 15/06/2022]

R. Zagami, **D. Franco**, L. De Plano and A. Mazzaglia. International Conference on Porphyrins and Phthalocyanines (ICPP-12)

Captisol®/Porphyrin Nanoassemblies with Antimicrobial Photodynamic Action

[15/04/2021 – 16/04/2021]

R. Zagami, **D. Franco**, J.D. Pipkin, V. Antle, L. De Plano, S. Patanè, S. Guglielmino, L. Monsù Scolaro, A. Mazzaglia. BIOMET2021-XX Workshop on Pharmacobiometallics 2021

Biocompatibility studies of Carbon dots towards cellular systems

[31/08/2021 – 03/09/2021]

G. Nocito, G. Calabrese, F. Puntoriero, **D. Franco**, S. P. P. Guglielmino, F. Nastasi, S. Conoci. Chem2Dmat 2021 Bologna

Carbon dots as a promising biomaterial for biological applications

[11/07/2021 – 14/07/2021]

G. Nocito, G. Calabrese, F. Puntoriero, **D. Franco**, S. Guglielmino, F. Nastasi, S. Conoci. Congresso Nazionale Biomateriali. Lecce

Antimicrobial Photodynamic Action of Photosensitising Nanoassemblies based on Cyclodextrins.

[23/06/2021 – 24/06/2021]

D. Franco (oral presentation), R. Zagami, L.M. De Plano, S.P. P. Guglielmino, A. Rubin Pedrazzo, F. Trotta, A. Mazzaglia. SIFB Meeting on Photobiology 2021

Captisol®/Porphyrin Nanoassemblies with Antimicrobial Photodynamic Action

[15/04/2021 – 16/04/2021]

R. Zagami, **D. Franco**, J.D. Pipkin, V. Antle, L. De Plano, S. Patanè, S. Guglielmino, L. Monsù Scolaro, A. Mazzaglia. - BIOMET2021

Innovative approach to discover new markers of Alzheimer's Disease for state/stage diagnosis by Phage Display technology

[14/11/2019 – 16/11/2019]

M.G. Rizzo, L.M. De Plano, S. Carnazza, **D. Franco**, S. Conoci, S. Petralia, A. Nicoletti, M. Zappia, S.P.P. Guglielmino. 2nd Brainstorming Research Assembly for Young Neuroscientists-BraYn 2019. Milano 2019

Nanocomplexes based on a cationic porphyrin and an anionic cyclodextrin with antimicrobial photodynamic properties

[19/06/2019 – 21/06/2019]

R. Zagami, J.D. Pipkin, V. Antle, **D. Franco**, L. De Plano, S. Patanè, S. Guglielmino, L. Monsù Scolaro, A. Mazzaglia. Annual Congress of the Italian Society of Photobiology – SIFB2019. Bologna 2019.

Fluorescent probes from phage display for myeloma molecular mapping

[19/06/2019 – 21/06/2019]

D. Franco (poster presentation), L.M. De Plano, M.G. Rizzo, E. Fazio, M. Bonsignore, F. Neri, A. Allegra, C. Musolino, G. Ferlazzo and S.P. P. Guglielmino. Annual Congress of the Italian Society of Photobiology – SIFB2019. Bologna 2019.

Captisol®/Porphyrin Nanocomplexes With Antimicrobial Photodynamic Properties

[02/10/2018 – 04/10/2018]

R. Zagami, J.D. Pipkin, V. Antle, **D. Franco**, L. De Plano, S. Patanè, S. Guglielmino, L. Monsù, Scolaro, A. Mazzaglia. 6th European Conference on Cyclodextrins, Santiago de Compostela 2-4 Ottobre 2018

Promiscuous phage-peptide as possible approach to a multiple drug targeted therapy

[24/09/2018 – 28/09/2018]

L.M. De Plano, **D. Franco**, M.G. Rizzo, S. Carnazza, M.S. Nicolò, S.P.P. Guglielmino. 1st NanoBio Conference. Creta 2018.

Phage-based capture and concentrating system for single step detection of pathogens in liquid samples

[24/09/2018 – 28/09/2018]

D. Franco (poster presentation), S. Trusso, L.M. De Plano, E. Fazio, M.G. Rizzo, S. Carnazza, F. Neri, S.P.P. Guglielmino. 1st NanoBio Conference. Creta 2018.

Captisol/porphyrin nanocomplexes with potential in PAT

[20/06/2018 – 22/06/2018]

R. Zagami, J.D. Pipkin, V. Antle, **D. Franco**, L. De Plano, S. Guglielmino, L. Monsù Scolaro, A. Mazzaglia. SIFB-ALPE ADRIA Meeting on Photobiology. Udine 2018.

Raman spectroscopy is able to discriminate between cd138-/cd138+ plasma cells of multiple myeloma patients

[14/06/2018 – 17/06/2018]

A. Allegra, O. Bianco, E. Fazio², M. Bonsignore, F. Neri, G. Ferlazzo, S. Trusso, **D. Franco**, L.M. De Plano, M.G. Rizzo, S. Crea, S.P.P. Guglielmino, C. Musolino. 23rd Congress of the European Hematology Association. Stockholm 2018.

“One step” functionalization of silicon nanoparticles with phage probes to identify pathogenic bacteria

[21/02/2018 – 23/02/2018]

M.G. Rizzo, L.M. De Plano, S. Crea, **D. Franco**, S. Scibilia, A.M. Mezzasalma, S.P.P. Guglielmino. 4° Convegno Nazionale Sensori (CNS). Catania 2018.

Raman spectroscopy analysis on plasma cell immune-phenotypes from patient affected by multiple myeloma

[21/02/2018 – 23/02/2018]

E. Fazio, M. Bonsignore, F. Neri, A. Allegra, C. Musolino, G. Ferlazzo, S. Trusso, **D. Franco**, L.M. De Plano, M.G. Rizzo, S. Crea, S.P.P. Guglielmino. 4° Convegno Nazionale Sensori (CNS). Catania 2018.

FITC-labelled clone from phage display for direct detection of leukemia cells in blood

[21/02/2018 – 23/02/2018]

D. Franco (oral presentation), L.M. De Plano, M.G. Rizzo, S. Crea, E. Fazio, M. Bonsignore, F. Neri, A. Allegra, C. Musolino, G. Ferlazzo, S. Trusso, S.P.P. Guglielmino. 4° Convegno Nazionale Sensori (CNS). Catania 2018.

M13 bacteriophages as bioreceptors in biosensor device

[21/02/2018 – 23/02/2018]

De Plano, **D. Franco**, M.G. Rizzo, S. Crea, G.M.L. Messina, G. Marletta, S.P.P. Guglielmino. 4° Convegno Nazionale Sensori (CNS). Catania 2018.

Computation of structure-specific parameters to perform biofilm structure patterns

[17/09/2017 – 20/09/2017]

L.M. De Plano, M.G. Rizzo, **D. Franco**, M. Caratozzolo, M. Frasca, L. Fortuna, and S.P.P. Guglielmino. Microbiology, XXXII SIMGBM Congress, Palermo 2017

Filamentation as evolutive strategy in *Pseudomonas mediterranea*

[17/09/2017 – 20/09/2017]

D. Franco (poster presentation), M.G. Rizzo, L.M. De Plano, G. Crea, F. Moscato, M.S. Nicolò, S.P.P. Guglielmino. Microbiology, XXXII SIMGBM Congress. Palermo 2017.

Production of phenoxy-substituted poly(3-hydroxyalkanoates) (PHA) by *Pseudomonas mediterranea*

[17/09/2017 – 20/09/2017]

M.G. Rizzo, L.M. De Plano, **D. Franco**, M.S. Nicolò, A. Ballistreri, G. Impallomeni, S.P.P. Guglielmino. Microbiology, XXXII SIMGBM Congress, Palermo 2017

A new approach for biomarker discovery in Alzheimer's disease

[19/10/2016 – 21/10/2016]

L.M. De Plano, S. Carnazza, **D. Franco**, A. Nicoletti, M. Zappia, S. Conoci, S. Petralia, S.P.P. Guglielmino. LNEU- The Lancet Neurology Conference Preclinical neurodegenerative disease, Londra 2016.

The role of Glutamine in Pseudomonas mediterranea for Biotechnological Processes

[16/09/2015 – 18/09/2015]

M.G. Rizzo, V. Chines, **D. Franco**, M.S. Nicolò, S. Guglielmino. ESBP- 8th European Symposium on Biopolymers, Roma 2015.

Phage-based biosensor for rapid detection of bacterial pathogen in blood

[11/05/2015 – 15/05/2015]

G. Lentini, F. Calabrese, S. Carnazza, L.M. De Plano, **D. Franco**, E. Fazio, S. Trusso, F. Neri and S.P.P. Guglielmino. EMRS- European Materials Research Society, Lille 2015.

Self-assembly of silver nanoparticles and bacteriophage

[11/05/2015 – 15/05/2015]

S. Scibilia, G. Lentini, E. Fazio, **D. Franco**, F. Neri, A.M. Mezzasalma, S.P.P. Guglielmino. EMRS-European Materials Research Society, Lille 2015.

Phage-coated paramagnetic beads as selective and specific capture system for biosensor applications

[03/02/2015 – 05/02/2015]

F. Calabrese, S. Carnazza, L.M. De Plano, G. Lentini, **D. Franco**, S.P.P. Guglielmino. XVIII AISEM- Fondazione Bruno Kessler, Trento 2015.

Phage display as a tool for rapid in vitro cell characterization by fluorescence imaging and Raman spectroscopy

[13/07/2014 – 16/07/2014]

L.M. De Plano, F. Calabrese, G. Lentini, M.S. Nicolò, **D. Franco**, E. Fazio, S. Trusso, A. Allegra, F. Neri, S.P.P. Guglielmino. ECB16- 16th European Congress on Biotechnology, Edimburgo 2014.

Integrated microbial process for bioconversion of crude glycerol from biodiesel into biosurfactants and PHAs

[08/06/2014 – 11/06/2014]

M.S. Nicolò, **D. Franco**, V. Camarda, R. Gullace, M.G. Rizzo, M. Fragalà, G. Licciardello, A.F. Catara, S.P.P. Guglielmino. IBIC- 4th International Conference on Industrial Biotechnology, Roma 2014.

The usage of Raman spectroscopy in the identification of cellular systems

[01/06/2014 – 03/06/2014]

D. Franco (poster presentation), E. Fazio, A. Allegra, M.S. Nicolò, F. Neri, S. Trusso, C. Musolino, S.P.P. Guglielmino. Workshop on Biomaterials and Their Interactions with Biological and Model Membranes, Salou 2014.

MALDI-TOF MS characterization of bacterial copolyesters

[07/10/2013 – 09/10/2013]

A. Ballistreri, G.M. Carnemolla, G. Impallomeni, **D. Franco**, M. Nicolò, S.P.P. Guglielmino. ESBP- European Symposium on Biopolymers, Lisbona 2013.

PROFESSIONAL SKILLS

Skills

- Organization and maintenance of scientific laboratories
- Sterilization and disinfection techniques
- Microbiological techniques of cultivation and identification

- Preparation and analysis of preparations for microscopy and spectroscopy
- Fluorescence imaging
- Raman spectrometry and SERS-Raman
- Techniques for evaluating bacterial sensitivity to antibiotics
- Development of micro and nano-structured systems for antimicrobial, antiadhesive and antibiofilm activities
- Drug delivery and drug targeting systems
- Development of diagnostic and therapeutic systems for pathogenic microorganisms (SEPSI), blood tumors (Leukemia and Myeloma) and neurodegenerative diseases (Alzheimer's)
- Production of bioproducts from microorganisms and microalgae (Polyhydroxyalkanoates, Biosurfactants and Fatty acids)
- In silico investigation (design of experiments and modeling of experimental data)
- Microbial fermentations
- Fermentation scale-up and downstream process

TEACHING ACTIVITIES AND SEMINAR ACTIVITIES

General Microbiology (Degree in Biological Sciences)

[2014 – 2016]

The bacterial cell wall

Sterilization and disinfection techniques

Antibiotics and Bacterial Resistance

Microbial Biotechnology (Master Degree in Biology)

[2014 – 2016]

Production of bioproducts from microorganisms and microalgae: Polyhydroxyalkanoates (PHA), Biosurfactants (BS) and Biodiesel

Microbial cultivation strategies: Batch, Fed-batch, Semi-continuous, Continuous...

In silico investigation: Design of Experiments and Response Surface Methodology

ASSISTANCE AND TUTORING ACTIVITIES FOR STUDENTS

General Microbiology (Degree in Biological Sciences)

[2014 – 2016]

Assistance and tutoring activities for the development of thesis

Microbial Biotechnology (Master Degree in Biology)

[2014 – 2016]

Assistance and tutoring activities for the development of experimental thesis

COMMUNICATION AND INTERPERSONAL SKILLS

Skills

Good communication skills acquired during the training period and participation in national and international congresses.

ORGANISATIONAL SKILLS

Skills

Good organizational and managerial skills acquired during collaboration in multidisciplinary teams and participation in scientific projects.

DRIVING LICENCE

Driving Licence: B

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV.