

# Curriculum



Nome Name:	FRANCESCA
Cognome Surname:	BUTTINI

ORCID:	n.d.
Scopus Author ID:	n.d.
WOS Author ID:	n.d.
Sito WEB WEB site:	n.d.

## **POSIZIONE PROFESSIONALE ATTUALE / CURRENT PROFESSIONAL POSITION:**

Posizione attuale Current position:	In servizio
Qualifica Qualification:	Professore Associato (L. 240/10)
Ateneo/Ente/Azienda University/Institution/Company:	Università degli Studi di PARMA
Nazione Ateneo/Ente/Azienda University/Institution/Company Country:	ITA
Anno inizio Start Year:	2018
Anno fine End Year:	n.d.

## **PRECEDENTI ESPERIENZE LAVORATIVE (ULTIMI 10 ANNI) / PREVIOUS WORK EXPERIENCE ( LAST 10 YEARS):**

Qualifica Qualification:	Ricercatore a t.d. - t.pieno (art. 24 c.3-a L. 240/10)
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Ateneo/Ente/Azienda University/Institution/Company	Università degli Studi di PARMA
Posizione Sede Lavorativi (indicare Nazione e Città) Workplace Location (specify Country and City):	Parma, PR, Italia
Anno inizio Start Year:	2013
Anno fine End Year:	n.d.
Descrizione Description:	• November 2013 - December 2017, Assistant Professor position (RTDb), Department of Pharmacy of the University of Parma (Italy);

### LINGUE / LANGUAGES:

Lingua Language:	Inglese
Scrittura Writing:	B1
Comunicazione Communication:	B1

### AREA/SETTORE SCIENTIFICO-DISCIPLINARE / AREA/SECTOR SCIENTIFIC-DISCIPLINARY

Area scientifico-disciplinare Area scientific-disciplinary:	Scienze chimiche
Area scientifico-disciplinare codice Area scientific-disciplinary code:	03
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-Tecnologia, socioeconomia e normativa dei medicinali e dei prodotti per il benessere e per la salute
Settore scientifico-disciplinare codice Sector scientific-disciplinary code:	-CHEM-08/A

### DESCRIZIONE DEI PRINCIPALI RISULTATI SCIENTIFICI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 PUBBLICAZIONI) / DESCRIPTION OF THE MAIN SCIENTIFIC RESULTS ACHIEVED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 PUBLICATIONS):

Descrizione Description:	<i>Francesca Buttini possess a strong background and have international recognition for her contributions to the development and characterization of inhalation products. Her research efforts have been dedicated to both fundamental research and the development of products that are currently available on the market, with a significant focus on privately</i>
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	<p><i>funded initiatives. Notably, she have demonstrated expertise in the development of dry powder inhalers, employing various methods such as conventional formulation approaches and particle engineering. Furthermore, she has a proven track record (publication of over 100 research papers each) of effectively combining powder formulations with suitable delivery devices, enhancing patient convenience and treatment adherence. Her work spans inhalers containing small molecules, such bronchodilators, and antibiotics, designed for addressing local pathologies like asthma, COPD, and Tuberculosis. Moreover, Francesca has specifically contributed to the development of inhalers for the systemic administration of peptides, including insulin, cyclosporine-A, and vaccines. Furthermore, Francesca is leading a research project focused on probiotic (live lactobacilli) for inhalation and combined antibiotic powders for Tuberculosis.</i></p>
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## PUBBLICAZIONI / PUBLICATIONS:

Anno della pubblicazione Year of publication:	2024
Citazione Citation:	<p>Glieca, Stefania, Quarta, Eride, Bottari, Benedetta, Bancalari, Elena, Monica, Saverio, Scaltriti, Erika, Tambassi, Martina, Flammini, Lisa, Bertoni, Simona, Bianchera, Annalisa, Fainardi, Valentina, Esposito, Susanna, Pisi, Giovanna, Bettini, Ruggero, Sonvico, Fabio, Buttini, Francesca (2024). Development of inhalation powders containing lactic acid bacteria with antimicrobial activity against Pseudomonas aeruginosa. INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS, vol. 63, 107001, ISSN: 0924-8579, doi: 10.1016/j.ijantimicag.2023.107001</p>

Anno della pubblicazione Year of publication:	2022
Citazione Citation:	<p>Quarta E., Degli Esposti L., Bettini R., Sonvico F., Catalucci D., Iafisco M., De Luca C., Trevisi G., Colombo P., Rossi A., Buttini F., Colombo G. (2022). Dry powder inhalation technology for heart targeting applied to calcium phosphate nanoparticles loaded with active substances. JOURNAL OF DRUG DELIVERY SCIENCE AND TECHNOLOGY, vol. 76, 103719, ISSN: 1773-2247, doi: 10.1016/j.jddst.2022.103719</p>

Anno della pubblicazione Year of publication:	2020
Citazione Citation:	<p>Quarta, Eride, Chierici, Veronica, Flammini, Lisa, Tognolini, Massimiliano, Barocelli, Elisabetta, Cantoni, Anna Maria, Dujovny, Gabriela, Ecenarro Probst, Susana, Sonvico, Fabio, Colombo, Gaia, Rossi, Alessandra, Bettini, Ruggero, Colombo, Paolo, Buttini, Francesca (2020). Excipient-free pulmonary insulin dry powder: Pharmacokinetic and pharmacodynamics profiles in rats. JOURNAL OF CONTROLLED RELEASE, vol. 323, p. 412-420,</p>

	ISSN: 0168-3659, doi: 10.1016/j.jconrel.2020.04.015
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Anno della pubblicazione Year of publication:	2020
Citazione Citation:	Chierici, Veronica, Cavalieri, Luca, Piraino, Alessio, Paleari, Davide, Quarta, Eride, Sonvico, Fabio, Melani, Andrea S, Buttini, Francesca (2020). Consequences of not-shaking and shake-fire delays on the emitted dose of some commercial solution and suspension pressurized metered dose inhalers. EXPERT OPINION ON DRUG DELIVERY, vol. 17, p. 1025-1039, ISSN: 1742-5247, doi: 10.1080/17425247.2020.1767066

Anno della pubblicazione Year of publication:	2018
Citazione Citation:	Buttini, Francesca, Giulia Balducci, Anna, Colombo, Gaia, Sonvico, Fabio, Montanari, Serena, Pisi, Giovanna, Rossi, Alessandra, Colombo, Paolo, Bettini, Ruggero (2018). Dose administration manoeuvres and patient care in tobramycin dry powder inhalation therapy. INTERNATIONAL JOURNAL OF PHARMACEUTICS, vol. 548, p. 182-191, ISSN: 0378-5173, doi: 10.1016/j.ijpharm.2018.06.006

Anno della pubblicazione Year of publication:	2017
Citazione Citation:	Martinelli, Francesco, Balducci, Anna Giulia, Kumar, Abhinav, SONVICO, Fabio, Forbes, Ben, BETTINI, Ruggero, BUTTINI, Francesca (2017). Engineered sodium hyaluronate respirable dry powders for pulmonary drug delivery. INTERNATIONAL JOURNAL OF PHARMACEUTICS, vol. 517, p. 286-295, ISSN: 0378-5173, doi: 10.1016/j.ijpharm.2016.12.002

Anno della pubblicazione Year of publication:	2016
Citazione Citation:	BUTTINI, Francesca, Brambilla, Gaetano, Copelli, Diego, Sisti, Viviana, BALDUCCI, Anna Giulia, BETTINI, Ruggero, PASQUALI, Irene (2016). Effect of Flow Rate on In Vitro Aerodynamic Performance of NEXThaler® in Comparison with Diskus® and Turbohaler® Dry Powder Inhalers. JOURNAL OF AEROSOL MEDICINE AND PULMONARY DRUG DELIVERY, vol. 29, p. 167-178-178, ISSN: 1941-2711, doi: 10.1089/jamp.2015.1220

Anno della pubblicazione Year of publication:	2023
Citazione Citation:	D'Angelo, Davide, Quarta, Eride, Glieca, Stefania, Varacca, Giada, Flammini, Lisa, Bertoni, Simona, Brandolini, Martina, Sambri, Vittorio, Grumiro, Laura, Gatti, Giulia, Dirani, Giorgio, Taddei, Francesca, Bianchera, Annalisa, Sonvico, Fabio, Bettini, Ruggero, Buttini, Francesca (2023). An Enhanced Dissolving Cyclosporin-A Inhalable Powder Efficiently Reduces SARS-CoV-2 Infection

	In Vitro. PHARMACEUTICS, vol. 15, 1023, ISSN: 1999-4923, doi: 10.3390/pharmaceutics15031023
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Anno della pubblicazione Year of publication:	2023
Citazione Citation:	Buttini, Francesca, Glieca, Stefania, Sonvico, Fabio, Lewis, David A (2023). Metered dose inhalers in the transition to low GWP propellants: what we know and what is missing to make it happen. EXPERT OPINION ON DRUG DELIVERY, vol. 20, p. 1131-1143, ISSN: 1742-5247, doi: 10.1080/17425247.2023.2264184

Anno della pubblicazione Year of publication:	2023
Citazione Citation:	D'Angelo, D, Chierici, V, Quarta, E, Varacca, G, Cavalieri, L, Piraino, A, Melani, AS, Sonvico, F, Buttini, F (2023). No-shaking and shake-fire delays affect respirable dose for suspension but not solution pMDIs (vol 631, 122478, 2023). INTERNATIONAL JOURNAL OF PHARMACEUTICS, vol. 633, ISSN: 0378-5173, doi: 10.1016/j.ijpharm.2023.122640

**DESCRIZIONE DEI PRINCIPALI PROGETTI DI RICERCA E PREMI CONSEGUITI NEGLI ULTIMI 10 ANNI (CON ANNESSO ELENCO DI MASSIMO 10 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PRINCIPAL INVESTIGATOR O COORDINATORE LOCALE DI PROGETTI DI RICERCA COMPETITIVI NAZIONALI O INTERNAZIONALI, SIGNIFICATIVI PREMI CONSEGUITI PER LA PROPRIA ATTIVITÀ DI RICERCA)/ DESCRIPTION OF THE MAIN RESEARCH PROJECTS AND AWARDS AWARDED IN THE LAST 10 YEARS (WITH ATTACHED LIST OF MAXIMUM 10 ACHIEVEMENTS, INCLUDING, FOR EXAMPLE, PRINCIPAL INVESTIGATOR OR LOCAL COORDINATOR OF NATIONAL OR INTERNATIONAL COMPETITIVE RESEARCH PROJECTS, SIGNIFICANT AWARDS AWARDED FOR YOUR RESEARCH ACTIVITY):**

Descrizione Description:	<i>Francesca Buttini Research priorities consistently focused on creating medicinal products for unmet clinical needs while considering scalability, excipient safety, regulatory compliance and patient convenience. Key achievements of Francesca include a patented (WO 2010/003465) antibiotic inhalation powder, which reduces excipient usage by minimizing the inhaled powder mass. Twelve papers have explored inhalation powders for antibiotics like amikacin, isoniazid, and rifampicin, targeting tuberculosis and cystic fibrosis infections. Innovative strategies, including particle coating and efflux pump inhibitors, enhance drug uptake by alveolar macrophages. FB collaborated with Prof. Dheda (University of</i>
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	<p><i>Cape Town, South Africa) group for the development of antibiotic inhalation powders and the project was funded in 2017 by SA medical research council. Additionally, Francesca has experience in the production of inhaled vaccines as shown by the development of an inhaled powder for human papillomavirus. A recent milestone is the patent application (WO 2023/111930) for a lidocaine inhalation powder addressing chronic cough, an unmet medical need with no existing therapies. An Italian pharmaceutical company acquired the patent license. A pioneering project involves nanoparticles loaded with a mimetic peptide in an inhalation powder, restoring contractile activity in cardiomyocytes. The "CUPIDO" project, funded by H2020 and developed by PlumeStars (SME co-founded by the PI), yielded three published papers. An exceptional innovation is the incorporation of lactobacilli into inhalation powders while preserving vitality. These particles (&lt;5 µm) are suitable for deposition at the lung's action site. Moreover, Lactobacillus plantarum demonstrates bactericidal activity against three P. aeruginosa strains. Francesca is skilled in the support and training of researchers and scientists and in the guidance of pharmaceutical development</i></p>
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<p>Descrizione Description:</p>	<p>RESPONSIBILITY FOR STUDIES AND SCIENTIFIC RESEARCH ENTRUSTED BY QUALIFIED PRIVATE INSTITUTIONS Scientific responsible for 27 research contracts stipulated between the University of Parma and many Pharmaceutical Companies. Many of the contracts with Chiesi were focused on the development of the Foster Nexthaler product which get marketing authorisation in 2012. TECHNOLOGY TRANSFER: CREATION OF NEW BUSINESSES (SPIN OFFS) DEVELOPMENT, USE AND MARKETING OF PATENTS 2013: Co-founding member of PlumeStars, an innovative small-medium enterprise that operates in the development of orphan drugs for therapies aimed at the treatment of lung diseases 2015: Three PlumeStars products for rare diseases received orphan designation from the EMA and FDA. Business plan and a clinical development pathway agreed with EMA. 2019: the PI conceived and registered within the European Union (N 006649570-0001) the design of RespiCell, a peculiar apparatus to assess the release profile of inhalation products. RESEARCH GRANTS • 2024: European Union-National Center for Gene Therapy and Drugs based on RNA Technology (CN RNA &amp; Gene Therapy). Budget allocated to the unit: 140,000.00 Euro • 2018: South African Medical Research Council Project (SAMRC-RFA-EMU-02-2017). Principal investigator Prof Keertan Dheda, University of Cape Town. Title of the project: Centre for the Study of Anti-Microbial Resistance (CAMRA). Budget allocated to the unit: 60,000.00 Euro; • 2016: Horizon 2020 Framework Programme Call for proposals: H2020-NMBP-2016-2017 (H2020-NMBP-2016-Nanoformulation of biologicals). Funded of the Proposal: 720834 — CUPIDO. Role: Prof Francesca Buttini scientific leader on behalf of PlumeStars unit and responsible for project and</p>
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formulation development. Budget allocated to the unit: 300,000.00 Euro.

**DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SVILUPPO DI RETI E RELAZIONI SCIENTIFICHE NAZIONALI E INTERNAZIONALI (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, PARTECIPAZIONE O ORGANIZZAZIONE DI CONVEGNI NAZIONALI E INTERNAZIONALI; CONTRIBUTI A CONSORZI DI RICERCA) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF DEVELOPMENT OF NATIONAL AND INTERNATIONAL SCIENTIFIC NETWORKS AND RELATIONS (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, PARTICIPATION OR ORGANIZATION OF NATIONAL AND INTERNATIONAL CONFERENCES; CONTRIBUTIONS TO RESEARCH CONSORTIA):**

<p>Descrizione Description:</p>	<p><i>Positions, Scientific Appointments, and Honors Jan 2018 - present Associate Professor in Pharmaceutical Technology, Food and Drug Department, University of Parma March 2016 - present Key Researcher for inhalation Product Design and Development, Research Center Pharmaceutical Engineering GmbH, Graz, (Austria) May 2104 - present Visiting Professor, Institute of Pharmaceutical Science, King's College London, London, (UK) FOLLOWSHIPS AND AWARDS 2023 Best poster award at the 8th Pulmonary Drug Delivery Workshop (Istanbul): "Development of inhalation powders containing lactobacilli with antimicrobial activity against P. aeruginosa" 2022 Best poster award at the 7th Pulmonary Drug Delivery Workshop (Dublin): "Formulation approach of inhalable protein decoy for SARS-CoV-2 infection" 2019 Best Poster Award EUFEPS Annual Meeting: "Pulmonary administration of a novel insulin powder" 2017 Emerging Scientist Award by the Aerosol Society UK. The award recognises significant scientific accomplishment or innovation during the early stages of an individual's career in inhalation science 2013 Selected in a start-up competition for of an incubation and support program financed by the TTAdvisor investment fund (Milan). Project "development of antibiotic products for inhalation", start-up Plumestars 2012 Business plan competition "StartCup". Award for the best suitable business plan for the creation of a start-up from a presented research project on "Insulin powder for inhalation" 2002 Best undergraduate student of the year, Pharmacy degree course, University of Parma ORGANISATION OF SCIENTIFIC MEETINGS 2019 Faculty board member, National Congress of the 20th Anniversary of the Italian Society for Aerosols in Medicine, 200 participants, Milan (IT) 2019 Scientific Advisory board member, In &amp; Out of inhalation therapy, 100 participants, Florence (IT) 2015-2019 and 2023-</i></p>
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	<i>present Scientific board member, Drug Delivery to the Lungs, 1000 participants, held each year in December Edinburgh (UK) 2015 Scientific Advisory and organization board member, Inhaled Therapies for Tuberculosis and Other Infectious Diseases, 250 participants, Parma (Italy)</i>
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Descrizione Description:	From 2009-2025 FB was invited as speaker at 44 internationally recognized Conferences. The most recent and relevant are: <ul style="list-style-type: none"> <li>• 2023: Lactic acid bacteria dry powder inhaler as promising tool for pseudomonas aeruginosa growth inhibition in pulmonary dysbiosis. 34th Drug Delivery to the Lungs Conference, Next Dec. 6-8 Edinburgh (UK)</li> <li>• 2023: Micro- and nano-particle engineering for novel respiratory treatments (Plenary). Medicin Valley Inhalation Consortium Symposium, Oct. 11-12 Lund (SE)</li> <li>• 2023: Innovative Therapeutic Approaches as DPI: Anaesthetic drug for Cough and Lactobacilli for Microbiota Modulation. Inhalation and Respiratory Drug Delivery, Rescon Summit Europe, June 20-21, Porto (PT)</li> <li>• 2023: Particle engineering for the modulation of drug release in inhalation therapy. 8th Pulmonary Drug Delivery Workshop, May 31-June 2 Istanbul (TR)</li> <li>• 2023. Proteins for Inhalation: different applications and formulation strategies. Formulation &amp; Delivery Conference (Oxford Global UK), May25-26, London (UK)</li> <li>• 2018: High dose delivery utilising a DPI. 26th Annual Conference. Dry Powder Inhalers. Management Forum. June 21-21 London (UK)</li> <li>• 2017: Engineered microparticles for DPI construction and powder administration (Emerging Scientist Plenary). 28th Drug Delivery to the Lungs Conference, Dec. 6-8, Edinburgh (UK)</li> <li>• 2013: Particles, powders and inhalation products for tuberculosis treatment. 2nd Conference on Inhaled therapies for Tuberculosis, Oct.1-3, Tokyo (JP)</li> </ul>
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**DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI DI SUPPORTO ALLA COMUNITÀ SCIENTIFICA (CON ANNESSO ELENCO DI MASSIMO 5 RISULTATI, INCLUDENDO, A TITOLO DI ESEMPIO, RESPONSABILITÀ DI DIREZIONE DI COMITATI EDITORIALI; INCARICHI DI VALUTAZIONE DELLA RICERCA PRESSO ISTITUZIONI NAZIONALI O INTERNAZIONALI; RESPONSABILITÀ ISTITUZIONALI ALL'INTERNO DELL'ISTITUZIONE DI APPARTENENZA O DI ALTRE ISTITUZIONI) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF SUPPORT TO THE SCIENTIFIC COMMUNITY (WITH ATTACHED LIST OF MAXIMUM 5 RESULTS, INCLUDING, FOR EXAMPLE, MANAGEMENT RESPONSIBILITIES OF EDITORIAL COMMITTEES; RESEARCH EVALUATION ROLES AT NATIONAL OR INTERNATIONAL INSTITUTIONS; INSTITUTIONAL**

**RESPONSIBILITIES WITHIN THE INSTITUTION OF AFFILIATION OR OTHER INSTITUTIONS):**

Descrizione Description:	
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**DESCRIZIONE DEI PRINCIPALI RISULTATI CONSEGUITI NEGLI ULTIMI 10 ANNI IN TERMINI VALORIZZAZIONE DELLE CONOSCENZE (CON ANNESSO ELENCO DI MASSIMO 3 RISULTATI, RELATIVI ALLA PARTECIPAZIONE DEL CANDIDATO ALLE ATTIVITÀ DI VALORIZZAZIONE DELLE CONOSCENZE) / DESCRIPTION OF THE MAIN RESULTS ACHIEVED IN THE LAST 10 YEARS IN TERMS OF KNOWLEDGE VALORIZATION (WITH ATTACHED LIST OF MAXIMUM 3 RESULTS, RELATING TO THE CANDIDATE'S PARTICIPATION IN KNOWLEDGE VALORIZATION ACTIVITIES):**

Descrizione Description:	
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Descrizione Description:	International Patent Applications WO 2023/111930 WO 2018/210909 WO 2013/053696 WO 2010/060529 WO 2010/003465 WO 2009/052869 41 patents granted, 4 pending.
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**Informazioni aggiornate alla data di candidatura 18-05-2025**

**FRANCESCA BUTTINI**

*Il presente curriculum costituisce allegato e parte integrante dell'incarico sottoscritto*