GHENT UNIVERSITY

FACULTY OF PHARMACEUTICAL SCIENCES

Laboratory for General Biochemistry and Physical Pharmacy
nanomedicines & biophotonics

LECTURE INVITATION

Inhaled Peptide Therapies for Metabolic Disease: New Opportunities for Incretin and Amylin Delivery

Prof. Francesca Buttini

Francesca Buttini is Associate Professor in Pharmaceutical Technology
Department of Food and Drug, University of Parma (Italy)
francesca.buttini@unipr.it

The lecture will take place on Friday, July 3rd 2026 at 10 am in Lokaal 0.3 – Alexander Fleming, Blok A, Campus Heymans, Faculty of Pharmaceutical Sciences, Ottergemsesteenweg 460, 9000 Ghent, Belgium

Registration not required

Contact
Prof. Koen Raemdonck
Koen.Raemdonck@UGent.be

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Pulmonary delivery of therapeutic peptides has attracted growing interest as a non-invasive alternative to subcutaneous injection, particularly for the treatment of chronic metabolic diseases. The large absorptive surface area of the lungs, their thin epithelial barrier, and rich vascularization offer unique opportunities for systemic delivery of peptide drugs while potentially improving patient acceptance and adherence. However, the successful development of inhaled peptide formulations requires careful consideration of physicochemical stability, aerosol performance, lung deposition, and absorption mechanisms.

This presentation will introduce the fundamental principles underlying the pulmonary delivery of peptides, with particular emphasis on formulation strategies for dry powder inhalers. Several case studies will be discussed, highlighting the development of inhaled insulin, GLP-1 receptor agonists, and amylin analogues as emerging therapies for diabetes and obesity. These examples will illustrate how formulation design, aerosol performance, and in vitro and preclinical assessment can support the development of inhaled peptide therapeutics.

Biography of Prof. Francesca Buttini

Francesca Buttini is Associate Professor in Pharmaceutical Technology at the Department of Food and Drug, University of Parma (Italy), where she leads the research unit dedicated to the design and development of inhalation drug products. Since 2014, she has also served as Visiting Lecturer at the Institute of Pharmaceutical Science, King's College London (UK).

Combining expertise in pharmaceutical technology, inhaler device design, and regulatory sciences, her research focuses on the development of patient-centric inhalation therapies that meet industrial, clinical, and regulatory requirements. Her current interests include the pulmonary delivery of proteins, peptides, and probiotics through dry powder inhalers, the development of innovative treatments for unmet medical needs, and the transition of pressurized metered-dose inhalers (pMDIs) towards environmentally sustainable propellants.

Professor Buttini has authored more than 100 peer-reviewed scientific publications and is co-inventor of 12 patents. In recognition of her contributions to inhalation science, she received the DDL Emerging Scientist Award from the UK Aerosol Society in 2017.

She is co-founder of PlumeStars, an innovative SME focused on the development of orphan drugs for the treatment of pulmonary and systemic diseases through inhalation, and serves on the Scientific Advisory Board of Alveolus Bio, a company developing targeted probiotic therapies for lung diseases.