PROF. SANTE DI GIOIA

Sante Di Gioia (Italian, born 27 December 1972) is associate professor in General Pathology and Research delegate at the Department of Clinical and Experimental Medicine, University of Foggia. Previously,he conducted research as a Fellow at the Institute for Experimental Treatment of Cystic Fibrosis, DIBIT/San Raffaele, Milan (2002–2005), and as a Visiting Research Fellow at the Molecular Medicine Centre, University of Edinburgh, UK (2005–2007).
He has a degree in Biological Sciences and holds a Specialization in Clinical Pathology and a doctoral degree in Biomedical Sciences and Technologies.
Professor Di Gioia's research has been characterized by collaboration on various research projects funded by Italian Foundation for the Research in Cystic Fibrosis. He was appointed responsible for the Foggia unit within the national PRIN project “Identification of optimal delivery systems for the Nucleic Acid Based Drugs and study of their action mechanisms in some models of human inflammatory and tumor pathologies” (2010-2011). He is currently responsible for the Foggia unit within the national project (PRIN) "Relationship between mucus structure and water magnetic relaxation: a link toward the use of LF-NMR to monitor the clinical conditions of COPD and CF patients."
Prof. Di Gioia’s research interests include:

Nanomedicine

- Experimental study of non-viral vectors in the field of gene therapy for cystic fibrosis.
- Delivery systems for nucleic acid–based therapeutics (NABDs).
- Design and optimization of nanoparticle-based drug-delivery: study of nanoparticle-mediated drug delivery systems, including solid lipid nanoparticles, chitosan-based conjugates, liposomes, and hydrogels, for targeted in vitro and in vivo delivery of heparin, beclomethasone, curcumin, and dopamine to airway epithelial cells and neural tissues.
- Isolation of plant-derived nanovesicles (broccoli-derived vesicles and tomato-derived vesicles) and their characterization such as the evaluation of their anti-proliferative, antioxidant and wound-healing properties.

Investigation of Cystic Fibrosis pathophysiology and development of gene/cell therapies and targeted drug delivery approaches

- In vivo analysis of inflammatory processes in murine models of cystic fibrosis for cell-based therapies
- Role of respiratory-secretion-derived microparticles in lung inflammation
- Investigation of CFTR, NHERF1, actin cytoskeleton, and tight junction interplay in polarized airway epithelial cell models.
- Evaluation of the pro-inflammatory responses of airway epithelial cells through NF-κB activation and chemokine/cytokine secretion assays.
- Study of host–pathogen interactions between Pseudomonas aeruginosa and respiratory epithelial cells using in vitro systems and in vivo models (acute and chronic mouse infection).
- Phenotypic characterization of hematopoietic stem/progenitor cells in models of endotoxin-induced acute lung injury
- Characterization of human placenta-derived stem/progenitor cells for potential application in cystic fibrosis cell therapy
- Identification of inflammation-related biomarkers in patients receiving antibiotics and novel small-molecule therapies.
- Analysis of mucus-penetrating delivery systems and their anti-inflammatory properties in ex vivo airway epithelial cell models.
- Role biophysical properties influence water magnetic relaxation, aiming to develop LF-NMR as a diagnostic monitoring technique for COPD and Cystic Fibrosis.

Analysis of IGFBP-6–mediated immune functions

- Study of the role of IGFBP-6 in intercellular immune communication and in the CF-associated inflammation.

Investigation of stem cell–based wound-healing therapies

- In vitro model of differentiation of human adipose-derived stem cells, either cultured or in stromal-vascular fraction

He is author of more than 84 publications in international peer-reviewed journals (h-index in Scopus 29) and has published 7 chapter books. He is Editorial Board Member of “Pathophysiology” and “Journal of Respiration”. He has served as a reviewer for the following scientific journals: “Molecules”; “International Journal of Molecular Sciences”; “Frontiers in bioengineering-and-biotechnology”; "Cellular Physiology and Biochemistry"; "Molecular Therapy - Nucleic Acids"; "International Journal of Nanomedicine"; "International Journal of Pharmaceutics".

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