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Effects of anti-VEGF, anti-TGFβ and their combo on Mesenchymal Stem Cells from human lung of patients affected by IPF

Supervisor: Prof. Monia Orciani

Department of Clinical and Molecular Sciences-Histology
https://www.disclimo.univpm.it/

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Supervisor: Prof. Monia Orciani

Research Group Description: the Supervisor

Prof. Monia Orciani, PhD

Associate Professor in Human Histology and Embryology, MorpHis Lab, DISCLIMO, School of Medicine, UNIVPM

Individual Evaluator - EIC Pathfinder Open 2024- European Commission, Research Executive Agency, REA/A/05

Supervisor for Degree Thesis and for Doctorate thesis

Collaboration with Corcept Therapeutics, Boheringer World Corporation, University of Manchester and other Italian Universities

More than 80 peer-reviewed research articles with about 2,000 citations received, H-index = 28 according to Scopus https://www.scopus.com/authid/detail.uri?authorId=23969507200). More than 15 years of experience in MSCs, in physiological condition and in selected pathologies

Research keyword: Mesenchymal stem cells, inflammation, miRNA, precision medicine

- National fundings:
  - ImmunoTools Award: winner of IT-FlowISiAM-Award 2024. "Searching for new targets for Alzheimer's disease"
  - Research Grant by Boehringer Ingelheim, 2022. Role of nintedanib on mesenchymal stem cells derived from patients with idiopathic puhnonary fibrosis (IPF). PI: Prof. MONIA ORCIANI and Martina Bonifazi
  - PRIN, 2022. the eFfects of cOrtisol excess on neuRoGenesis in AlzhEimer's disease: a mandaTory Footpath throUgh stem celLs (FORGETFUL) PI: Prof. MONIA ORCIANI. 2022XF7XZF
  - Fondo di Finanziamento Attività di Base di Ricerca (FFABR) – FFO, 2017. "Inflammation and stem cells: new associations" PI: Prof. MONIA ORCIANI.
  - PI for Strategic Projects of the University, 2017. Role of stem cells in the detrimental wound healing of patients affected by Cushing syndrome 10/01/2017- 09/10/2019

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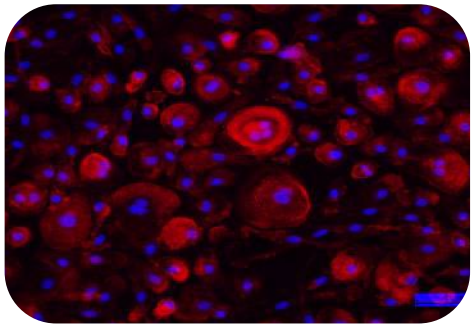
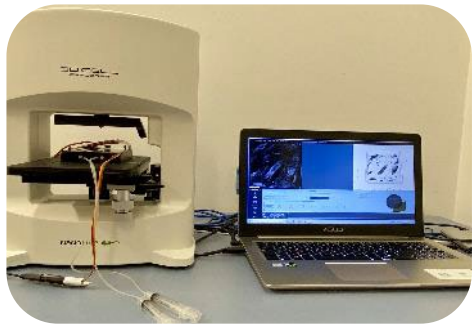
Research Group Description: MorpHis Lab

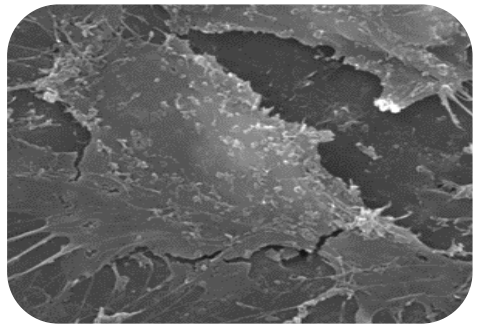
Staff: The Histology Group (MorpHis Lab) is composed by one full professor (Prof. M. Mattioli Belmonte), one Associate Professor (Prof. S. Marchi), one technician (Dr. G. Lucarini), 5 post-doc (Dr. C. Licini, Dr. F. Marchegiani, Dr. M. Di Vincenzo, Dr. G. Cerqueni, Dr. N. Dhaouadi) and 2 PhD students (Dr. I. Nunzi and A. La Contana)



Skills: cell lines, primary cells or adult MSCs (harvested from different anatomical districts), monolayer and co-cultural approaches, morphological (light and electron microscopy) and molecular biology (qRT-PCR, WB) techniques, analysis of mitochondrial parameters.



Equipment: laminar flow hoods, Realplex qRT PCR, luminometer for Ca^{2+} measurements, light and fluorescence microscopes, spectrophotometer with microplate reader, UVITEC, Synthecon rotary cell culture system, and Tomographic Microscope 3D Cell Explorer-FLUO by Nanolive.



Facilities: CLSM , SEM and TEM, FACS and Tecan Infinite Microplate Reader for fluorescent and bioluminescent assays.

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Department of Clinical and Molecular Sciences (DISCLIMO)

16 SCIENTIFIC AREAS

BIOS-13/A MEDS-02/A
MEDS-02/B MEDS-02/C
MEDS-05/A MEDS-08/A
MEDS-09/A MEDS-09/B
MEDS-09/C MEDS-10/A
MEDS-10/C MEDS-18/A
MEDS-19/A MEDS-25/B
MEDS-26/A MEDS-26/D

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CLINICAL RESEARCH UNITS

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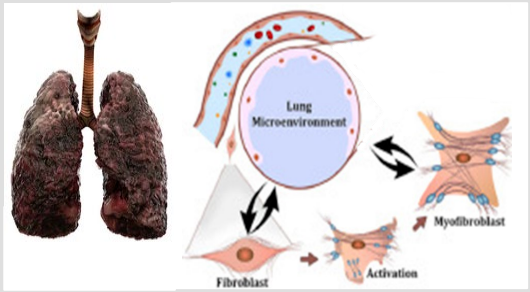
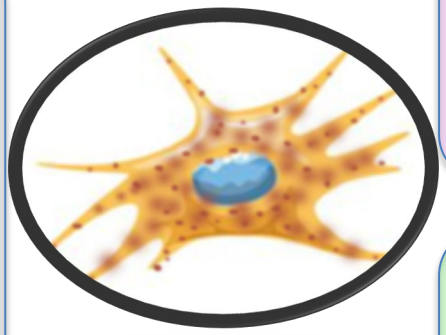
Project Idea: Effects of anti-VEGF, anti-TGFβ and their combo on Mesenchymal Stem Cells from human lung of patients affected by IPF

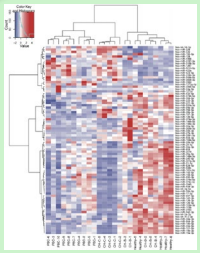


Background: Idiopathic pulmonary fibrosis (IPF) is a progressive lung disease marked by scarring of lung tissue, which hinders respiratory function. Due to its variability among patients, IPF requires a personalized treatment approach. Research into mesenchymal stem cells (MSCs) and their reactions to both existing and new drugs as well as the search for new method of action offer promising potential for improving IPF management.

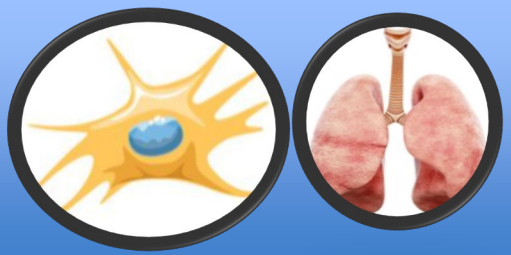


IPF-MSCs

Aim 1: To test the involvement of MSCs in IPF onset and their responsiveness to drugs as an innovative therapeutic target, offering new perspectives for earlier diagnosis and targeted treatments



Aim 2: To perform miRNA profiling to identify novel pathways involved in IPF while drugs' effect on these miRNAs could provide insights into its unrevealed therapeutic mechanisms.



Conclusion: Restoring IPF-MSCs through the use of existing, novel, or combination therapies, while targeting previously unexplored mechanisms, holds potential for improving treatment outcomes.