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**MAP study: Microplastics Assessment in Pleura**

**Supervisor: Prof. Federico Mei**

Department of Biomedical Sciences and Public Health- <http://www.disbsp.univpm.it/>



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## Supervisor: Prof. Federico Mei

### Research Group Description

Clinical researcher of Respiratory Diseases (SSD MED 10)  
Department of Biomedical Science and Public health (DSBSP)-  
UNIVPM

**N° publications:** 42

**H index :** 11

**Citations:** 506 (last SCOPUS access: 29<sup>th</sup> February 2024)

#### Job positions:

##### **Consultant in Respiratory Medicine and Interventional Pulmonology**

SOSD Intertitial Lung disease, Pleural disease and bronchiectasis, Dept of Internal Medicine - University Hospital; Ancona, Italy

##### **Clinical Observer**

Oxford Pleural Unit; Oxford University Foundation Hospitals Trust

#### Research interests:

**pleural disease, mesothelioma, pleural infection, interventional pulmonology, lung cancer, ILD, IPF, air pollution**

#### Teaching activity:

**Assistant Professor and Clinical Researcher of Respiratory Medicine - DiSBSP– UNIVPM**

**Senior Lecturer - DiSBSP– UNIVPM**

#### **Research group (UNIVPM)**

Martina Bonifazi (DSBSP), Francesca Gonnelli (DSBSP), Flavia Carle (DSBSP), Rosaria Gesuita (DSBSP), Edlira Skrami (DSBSP), Gianluca Moroncini (DISCO), Monia Orciani (DISCLIMO), Marco Tomassetti (DISCO), Lory Santarelli (DISCO), Gaia Goteri (DSBSP)

#### **National and international research collaboration**

Università San Raffaele (Milano), Università Studi di Milano, Oxford University (UK), University of Nottingham (UK), University of Glasgow, University of Sheffield (UK), Univeristy of Bristol (UK), Univesity of Lleda (Spain), University of Zealand (DK), Royal Brompton Hospital (London), Stellenbosch University (South-Africa)



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# Research Topics



INTERNATIONAL  
MULTICENTRE  
PLEURAL RESEARCH  
COLLABORATIVE

<https://pleuraldisease.eu>

**Aims**  
2017 - 2022

22 countries  
5 continents

70 members

40 institutions

**Future plans**  
2023

Expand membership and diversity

Establish research priorities of global pleural disease practitioners

Establish research priorities of patients with pleura disease through engagement with the European Lung Foundation

Investigate current practices in pleural disease diagnosis and management in diverse global populations

Launch targeted initiatives in pleural research

Data analysis in progress...

Chyllothorax

Eosinophilic effusions

Suspected drug-induced effusions

Benign effusions

Data collection

**Join the ICF Pleural Disease Project**

**Administrator**  
Jenny Symonds  
[jenny.symonds@nbt.nhs.uk](mailto:jenny.symonds@nbt.nhs.uk)

**Chairs**  
Ulrich Eberhard  
Federico Mei  
Steven Walker  
Jane Shaw  
[ubt@regg.dk](mailto:ubt@regg.dk)  
[f.mei@staff.univpm.it](mailto:f.mei@staff.univpm.it)  
[steven.walker@bristol.ac.uk](mailto:steven.walker@bristol.ac.uk)  
[janeshaw@nbt.nhs.uk](mailto:janeshaw@nbt.nhs.uk)

Gonnelli et al. *Respiratory Research* (2024) 25:47  
<https://doi.org/10.1186/s12931-024-02684-7>

Respiratory Research

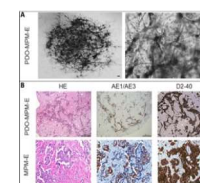
REVIEW Open Access

**Malignant pleural effusion: current understanding and therapeutic approach**

Francesca Gonnelli<sup>1</sup>, Wafa Hassan<sup>2</sup>, Martina Bonifazi<sup>1</sup>, Valentina Pinelli<sup>3</sup>, Eihab O Bedawi<sup>2</sup>, José M. Porcel<sup>4,5</sup>, Najib M Rahman<sup>6,7,8</sup> and Federico Mei<sup>1\*</sup>

Role of patient-derive organoids in mesothelioma (MPM) in collaboration with the departement of occupational medicine of UNIVPM

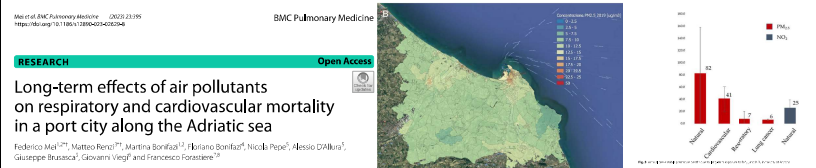
Patient-derived MPM organoids (PDO-MPMs), developed through a 3-D culture system from pleural effusion and pleural biopsies of patients with MPM, and tested for drug response to CisPt/PeMtx or to Pembrolizumab



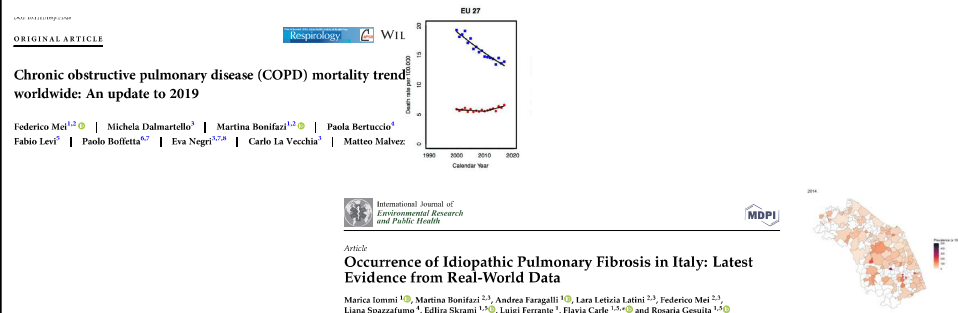
Ongoing international reseaserch: PREDICT MESO, in collaboration with San Raffaele University and University of Glasgow



Impact of air pollution (mainly due to maritime trasportation) on respiratory and cardiovascular diseases using secondary health care sources and Flexible Air Quality Regional Model (FARM), in collaboration with expert epidemiologists (Dr Francesco Forastiere; Dr Giovanni Viegi)



Epidemiology and pharmacoepidemiology of respiratory diseases (COPD, Interstitial Lung Disease ILDs) using secondary health care sources, in collaboration with epidemiologists of UNIVPM, of Milano University, Bicocca University, and University of Nottingham



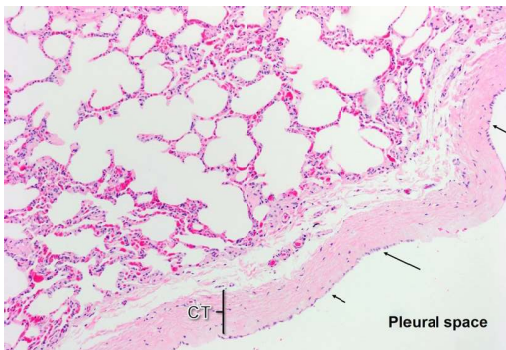
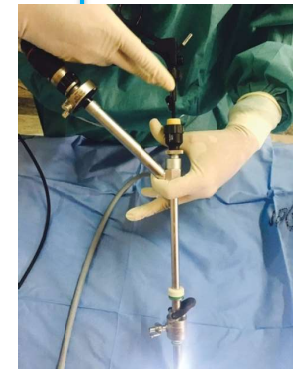


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## Supervisor: Prof. Federico Mei

### Project Idea

**Background:** Micro- and nano-plastics have been found in various human tissues, raising concerns about their potential effects on human health (1-5) . Chronic exposure has been associated with increased inflammation, cellular dysfunction, and malignancies, also contributing to cardiovascular and respiratory diseases. However, little is known about their role in pulmonary and pleural diseases, particularly in terms of their prevalence and impact on disease progression and mortality.



**Aim:** To assess the concentration and types of micro- and nano-plastics in pleural effusion and pleural biopsies from patients with non-malignant and non-infectious pleuritis (NSP: Non specific pleuritis) and to evaluate the impact of micro- and nano-plastics on disease-specific outcomes (e.g., pleural effusion relapse, pleural malignancy evolution rate) and all-cause mortality



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# Detection of Micro-nanoplastics in the Atheromatous Plaque by Transmission and Scanning Electron Microscopy and EDX Microanalysis

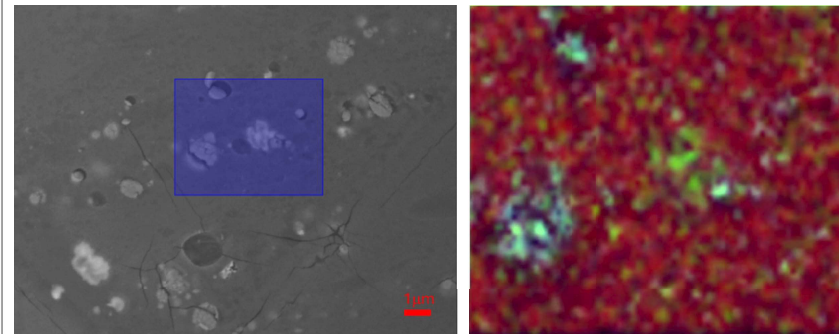
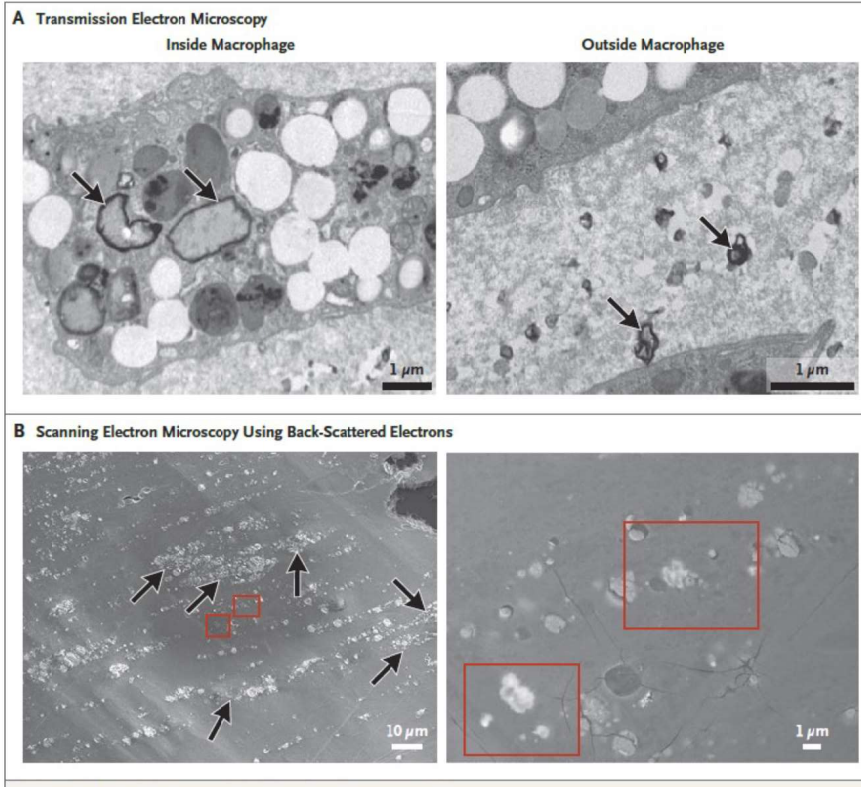
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

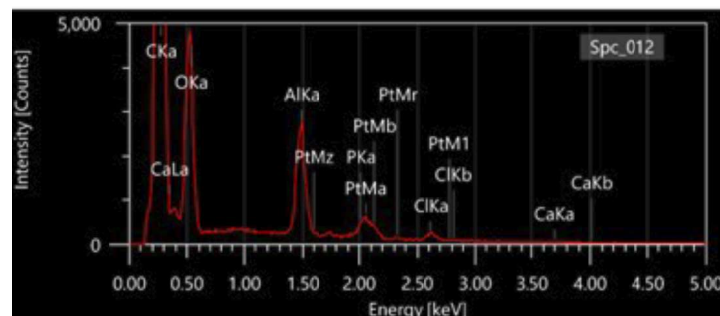
## Microplastics and Nanoplastics in Atheromas and Cardiovascular Events

R. Marfella, F. Prattichizzo, C. Sardu, G. Fulgenzi, L. Graciotti, T. Spadoni, N. D'Onofrio, L. Scisciola, R. La Grotta, C. Frigé, V. Pellegrini, M. Municinò, M. Siniscalchi, F. Spinetti, G. Vigliotti, C. Vecchione, A. Carrizzo, G. Accarino, A. Squillante, G. Spaziano, D. Mirra, R. Esposito, S. Altieri, G. Falco, A. Fenti, S. Galoppo, S. Canzano, F.C. Sasso, G. Matacchione, F. Olivieri, F. Ferraraccio, I. Panarese, P. Paolisso, E. Barbato, C. Lubritto, M.L. Balestrieri, C. Mauro, A.E. Caballero, S. Rajagopalan, A. Ceriello, B. D'Agostino, P. Iovino, and G. Paolisso

N ENGL J MED 390:10 NEJM.ORG MARCH 7, 2024



■ C-K ■ O-K ■ P-K ■ Cl-K ■ Ca-K



Display name	Standard data	Quantification method	Result Type
Spc_012	Standardless	ZAF	Metal
Element	Line	Mass%	Atom%
C	K	52.87±0.07	71.97±0.10
O	K	17.40±0.09	17.79±0.09
Al	K	11.51±0.11	6.97±0.07
P	K	1.10±0.08	0.58±0.04
Cl	K	3.03±0.10	1.40±0.05
Ca	K	0.32±0.31	0.13±0.13
Pt	M	13.76±0.32	1.15±0.03
Total		100.00	100.00
Spc_012			Fitting ratio 0.1690





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# The Department of Biomedical Sciences and Public Health

Director: Prof. Abele Donati

## The Department of Biomedical Sciences and Public Health

was established on the 1st July 2011, following a process of reorganisation of the University. The Department is a self-managing organizational branch of the university which is dedicated to scientific research, teaching, and contributing to the so called Third Mission of the Higher Education Institution through the dissemination of scientific research findings amongst the community.

Its main aims are to plan, organize and regularly assess the quality of the research activity carried out in the scientific sectors and disciplines under its jurisdiction; to plan, organize and manage first level and master courses of the Faculty of Medicine and, last but not least, to provide cultural and educational activities and contribute to training and guidance activities according to the students needs in collaboration with the medical association.

It has been declared in 2018 by Ministry of University and Research “Department of Excellence”

## AT A GLANCE

