



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

MAP study: Microplastics Assessment in Pleura

Supervisor: Prof. Federico Mei

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



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

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: 29th 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)



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

Research Topics



<https://pleuraldisease.eu>

Aims
2017 - 2022

Investigate pleural diseases typically under-represented in the pleural literature

Serve as a platform to launch ambitious multinational collaborations in pleural disease

The International Collaborative Effusion (ICE) database: an ERS Clinical Research Collaboration

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 pleural 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

Join the ICE Pleural Disease Project

Administrator
Jenny Symonds
jenny.symonds@nbt.nhs.uk

Chairs
Uffe Bodtger
Federico Mei
Steven Walker
Jane Shaw
u@regg.dk
f.mei@staff.univim.it
steven.walker@hristol.ac.uk
jane.shaw@nbt.nhs.uk

Non-specific pleuritis

Benign effusions

Data analysis in progress...

Eosinophilic effusions

Suspected drug-induced effusions

Chylothorax

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

Respiratory Research

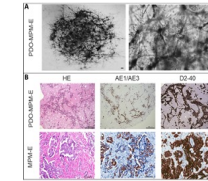
REVIEW **Open Access**

Malignant pleural effusion: current understanding and therapeutic approach

Francesca Gonnelli¹, Wafa Hassan², Martina Bonifazi¹, Valentina Pinelli³, Eihab O Bedawi², José M. Porcel^{4,5}, Najib M Rahman^{6,7,8} and Federico Mei^{1*}

Role of patient-derive organoids in mesothelioma (MPM) in collaboration with the department 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 research: PREDICT MESO, in collaboration with San Raffaele University and University of Glasgow



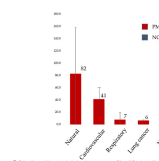
Impact of air pollution (mainly due to maritime transportation) on respiratory and cardiovascular diseases using secondary health care sources and Flexible Air Quality Regional Model (FARM), in collaboration with expert epidemiologists (Dr Francesco Forastiere; Dr Giovanni Viegi)

BMC Pulmonary Medicine

RESEARCH **Open Access**

Long-term effects of air pollutants on respiratory and cardiovascular mortality in a port city along the Adriatic sea

Federico Mei^{1*}, Matteo Renzi², Martina Bonifazi¹, Floriano Bonifazi³, Nicola Peppi⁴, Alessio DiAlura⁵, Giuseppe Bruzzone⁶, Giovanni Viegi⁷ and Francesco Forastiere⁸



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

ORIGINAL ARTICLE

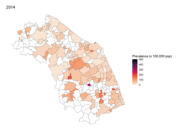
Chronic obstructive pulmonary disease (COPD) mortality trend worldwide: An update to 2019

Federico Mei^{1,2}, Michela Dalmatello³, Martina Bonifazi^{1,2}, Paola Bertuccio⁴, Fabio Levi⁵, Paolo Boffetta^{6,7}, Eva Negri^{1,2,8}, Carlo La Vecchia⁹ and Matteo Malvezzi^{1,2}



Article
Occurrence of Idiopathic Pulmonary Fibrosis in Italy: Latest Evidence from Real-World Data

Marica Tommi¹, Martina Bonifazi^{1,2}, Andrea Faragalli^{1,3}, Lara Letizia Latini^{1,2}, Federico Mei^{1,2,4}, Liana Spazzafumo⁵, Edlira Skrami^{1,6,7}, Luigi Ferrante¹, Flavia Carle^{1,8,9} and Rosaria Genita^{1,10}



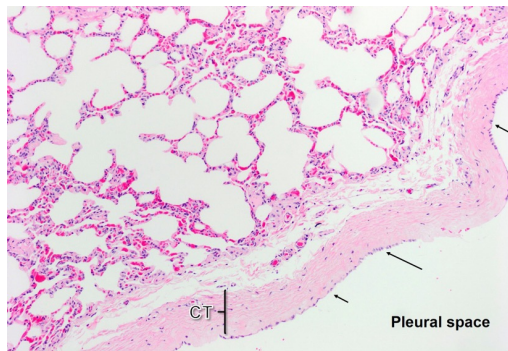


UNIVERSITÀ
POLITECNICA
DELLE MARCHE

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



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

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

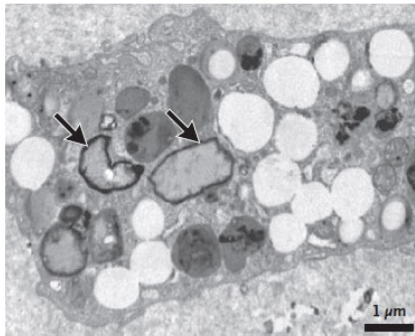
Microplastics and Nanoplastics in Atheromas and Cardiovascular Events

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. Maticchione, 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

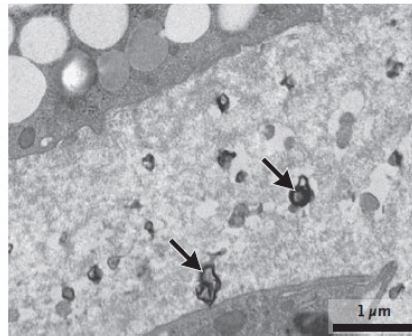
N ENGL J MED 390:10 NEJM.ORG MARCH 7, 2024

A Transmission Electron Microscopy

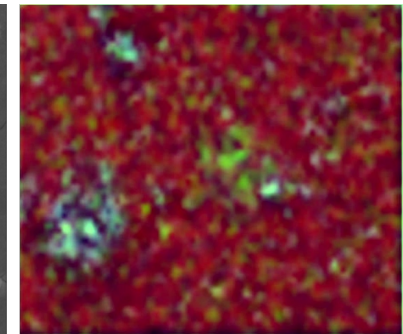
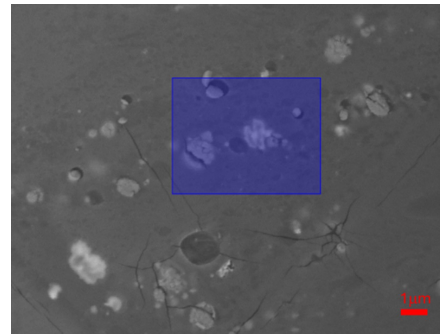
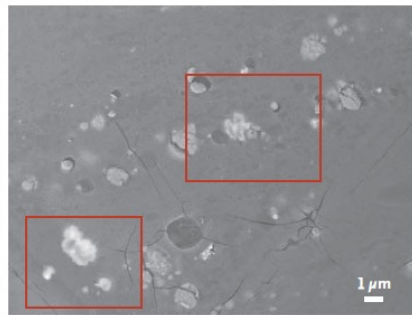
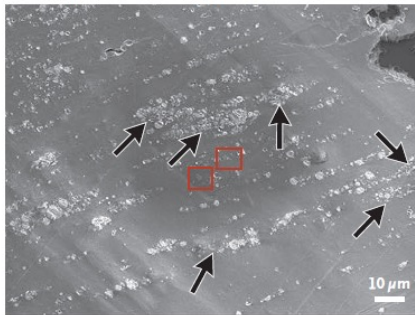
Inside Macrophage



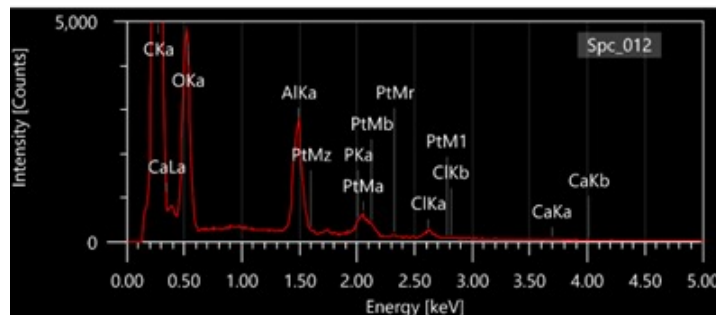
Outside Macrophage



B Scanning Electron Microscopy Using Back-Scattered Electrons



■ 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



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

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

