

A scientific project to UNDERSTAND THE HEALTH EFFECTS OF MICRO- AND NANOPLASTICS with a focus on allergic disease



Micro- and nanoplastics (MNPs) are tiny plastic particles that form when larger items of plastic degrade, or are manufactured and added to commercial products.

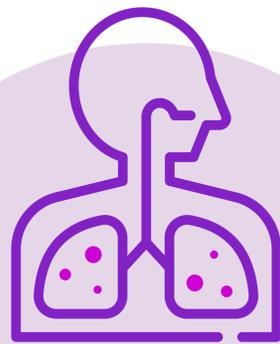
These minuscule pieces can be found anywhere on earth, including our bodies, as they enter our organism through food, water and air, yet we currently do not understand how they affect human health.

THE PROJECT



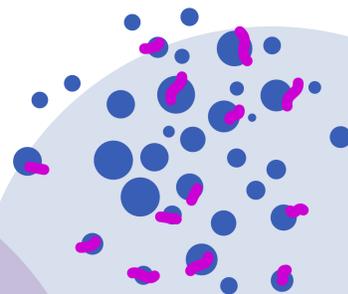
IMPROVING EXPOSURE ASSESSMENT

To understand the level of exposure to micro- and nanoplastics in food, water and air.



UNDERSTANDING THE RELATIONSHIP OF MNPs WITH ALLERGIC DISEASE

To see if MNPs in food and air can increase the number of allergic people or worsen their allergies.



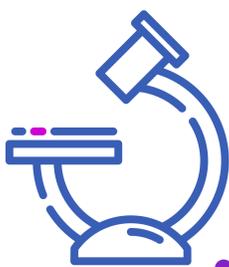
EVALUATING THE ROLE OF MNPs AS VECTORS FOR CONTAMINANTS

To understand the interaction and the health impact of MNPs combined with potentially toxic biotic and abiotic materials, including metals, allergens and pathogenic bacteria and their toxins.

THE WORKPLAN

NEW TOOLS

We aim to develop and optimise analytical tools for MNP detection and characterisation beyond the current state-of-the-art. This will include the production of model MNPs and the design of methods to quantify and track MNPs in complex matrices.



MNPs IN FOOD AND AIR

We plan to quantify and characterise MNPs in seafood and coastal aerosol and to investigate the accumulation of nanoplastics in plants irrigated with water containing NPs.



IN VITRO AND IN VIVO TESTING

We will carry out *in vivo* and *in vitro* studies to understand cellular and systemic responses to MNP exposure with and without allergen cargo.



MNPs AND CONTAMINANTS

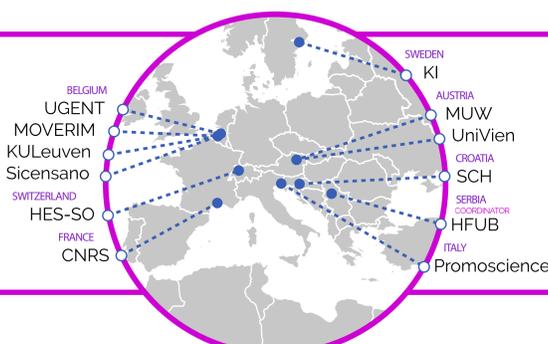
We intend to evaluate the impact of potentially harmful microplastics cargo material on human health. This includes the study of microbial colonisation on the surface of MPs to assess a possible promotion of antibiotic resistance and virulence within microbial communities.



CLINICAL STUDIES

We will conduct clinical studies with children living in cities and by the seaside to determine links between MNP exposure and allergic disease.

THE TEAM



We are a multidisciplinary team of scientists with expertise in a wide range of fields including food sciences, allergy, immunology, biomedicine, chemistry, bioinformatics and others.



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Contact Us
www.imptox.eu
secretariat@imptox.eu

