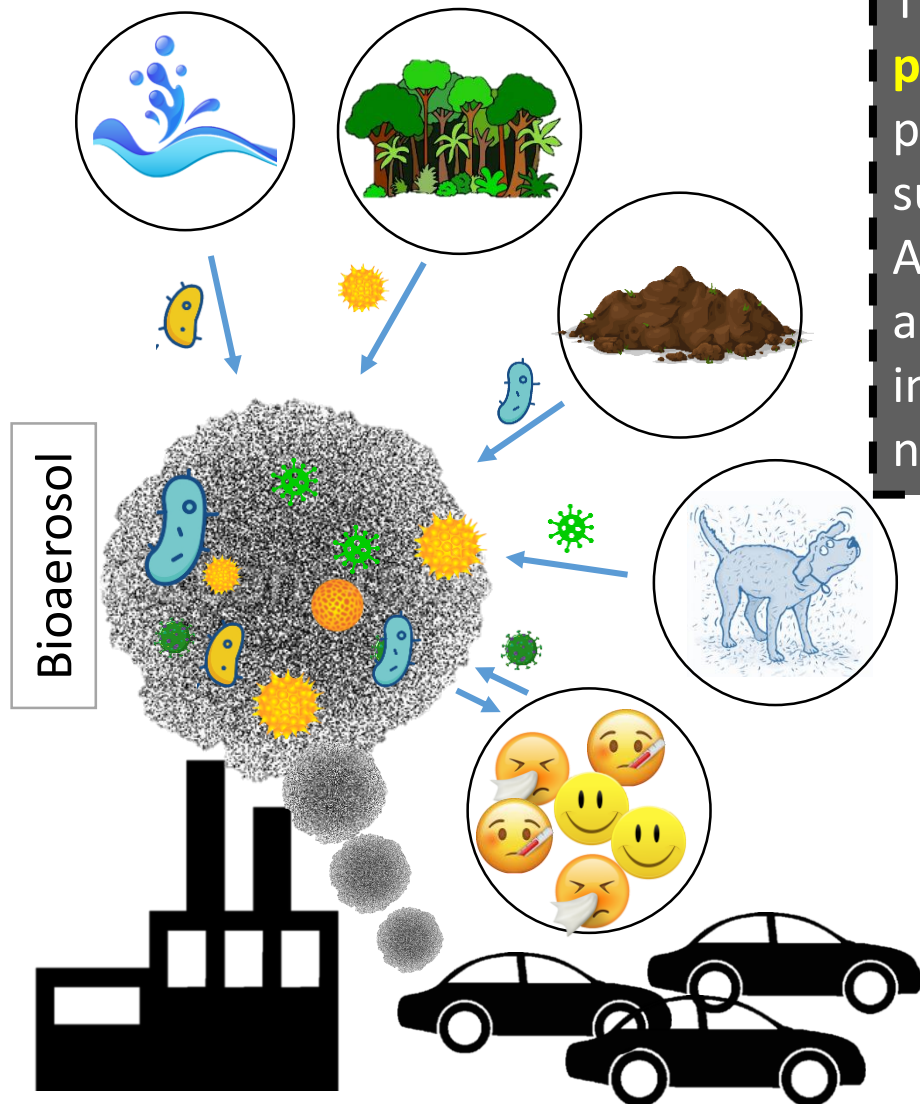


# Biogenic characteristics of microparticles in big cities: structure of microbial community, pathogenicity and driving factors (MicroAir)

**Participants:** Olga Gavrichkova, Kristina Ivashchenko, Pavel Konstantinov, Maria Korneykova, Claudia Mattioni, Andrej Novikov, Paola Pollegioni, Olesya Sazonova, Gregorio Sgrigna, Anna Vetrova, Alexej Yaroslavtsev, Viacheslav Vasenev



# Biogenic characteristics of microparticles in big cities: structure of microbial community, pathogenicity and driving factors



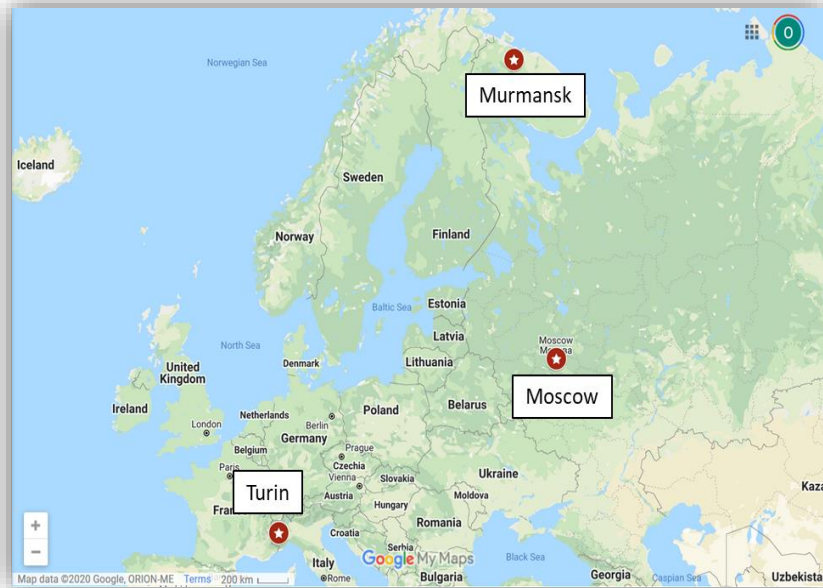
The air is a hostile environment for microorganisms, instead, the **particulate matter (PM)** may host biological agents, provide nutrients, protect against adverse conditions (e.g. UV radiation) and increase the survival possibilities.

Among the microorganisms associated to PM, were found pathogenic and allergenic bacteria, viruses, fungi and pollens. Environmental factors involved in shaping the airborne microbial community are many and necessitate better evaluation.

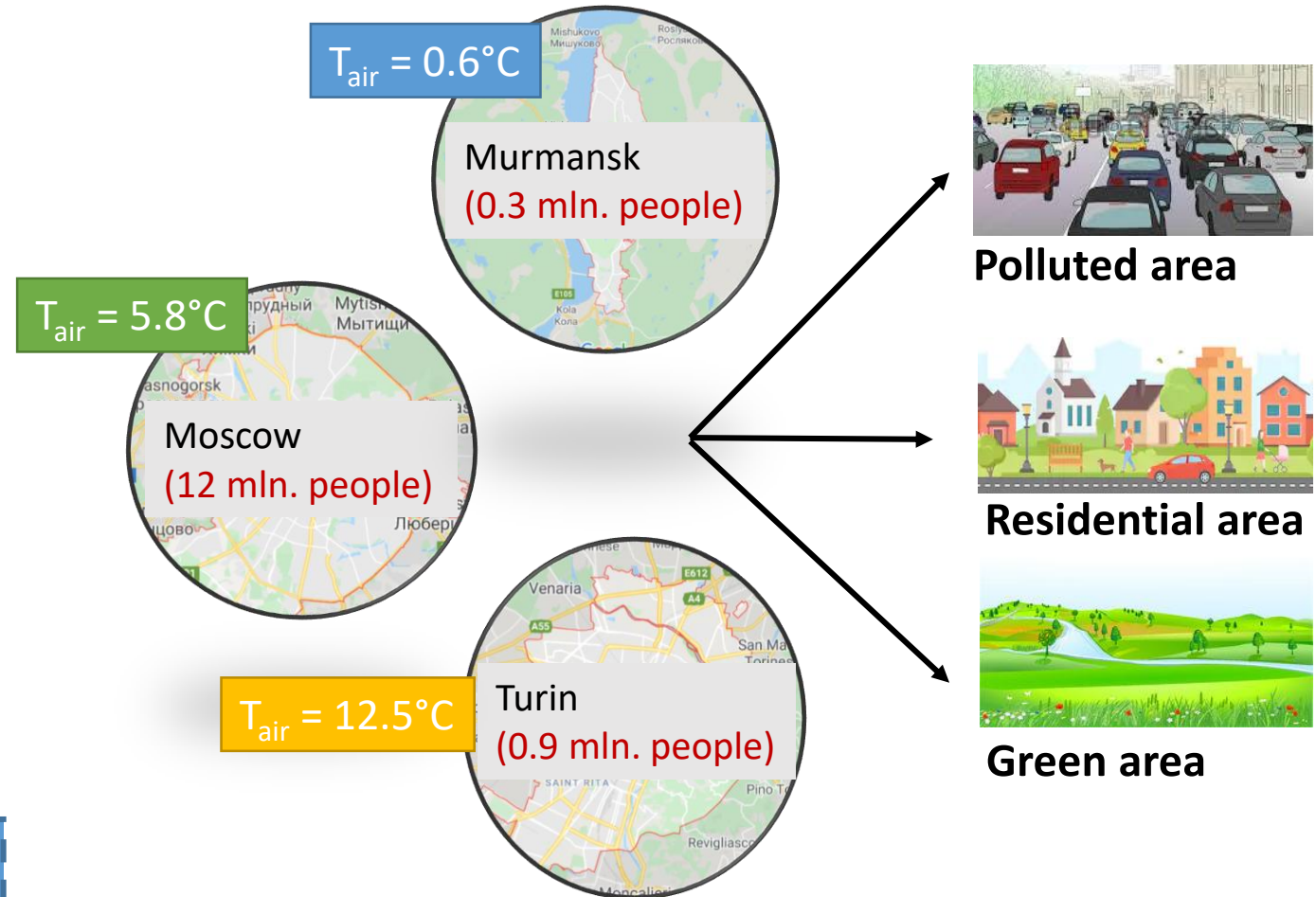
MicroAir aims to identify how the biological component of PM, its biodiversity, pathogenicity and activity is related to the physico-chemical composition of PM and other potential drivers considering the latitudinal gradient.

Official project start: December 2019

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Project geography: 3 big cities  
(>250.000 inhabitants) along the  
climatic gradient

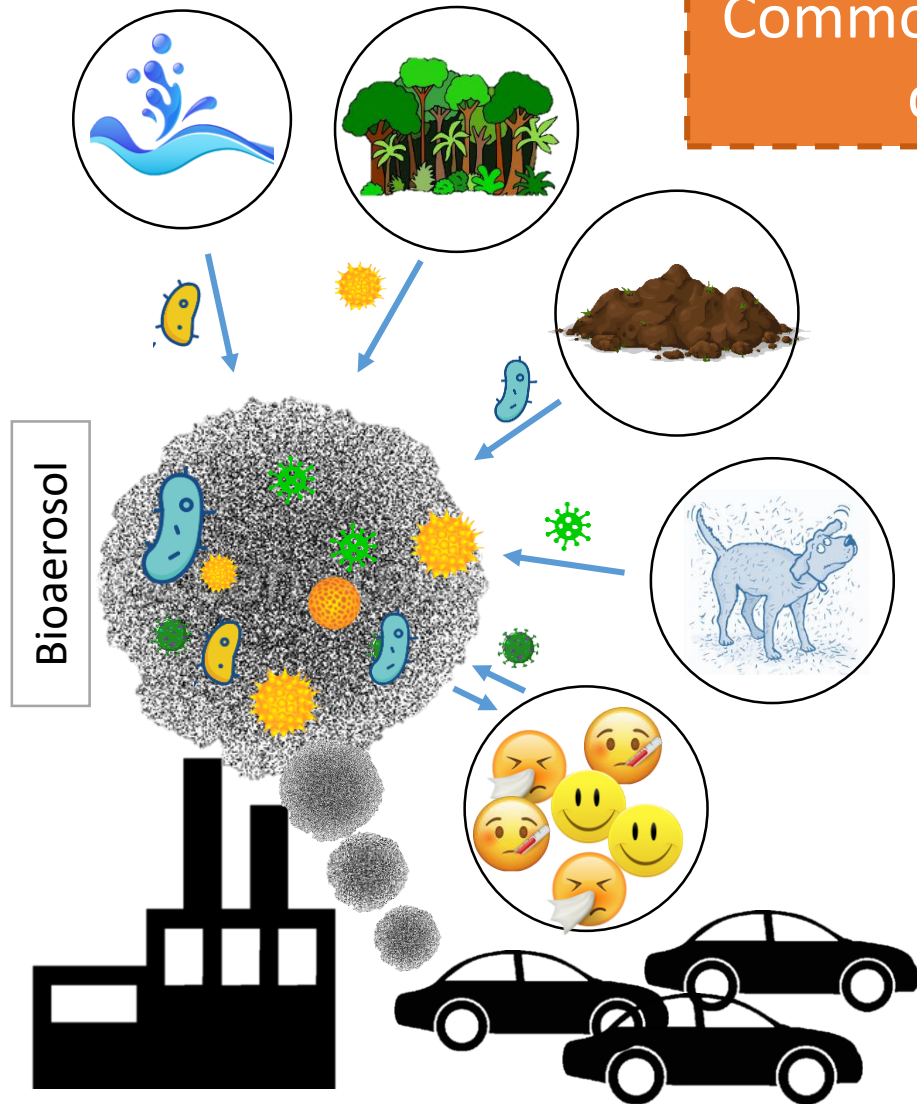


Project geography: 3 functional  
areas within each city

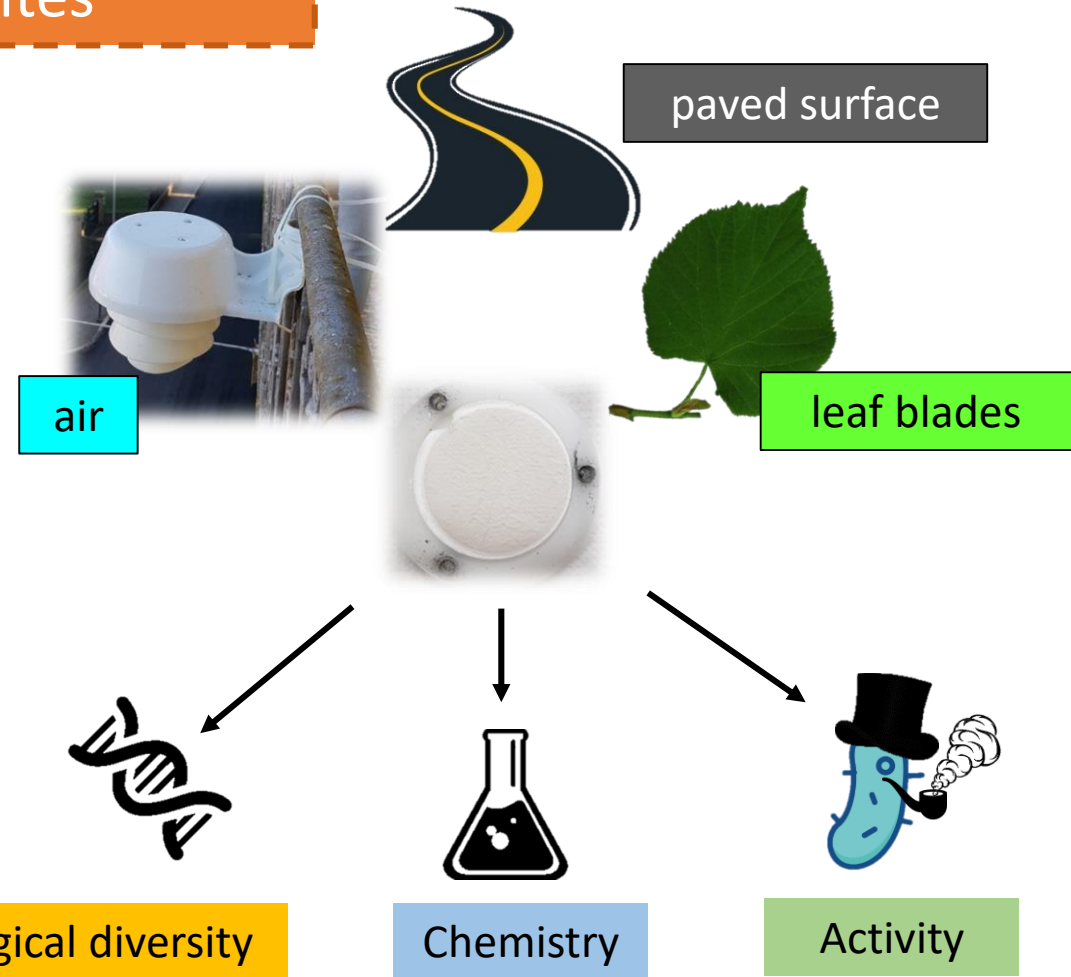


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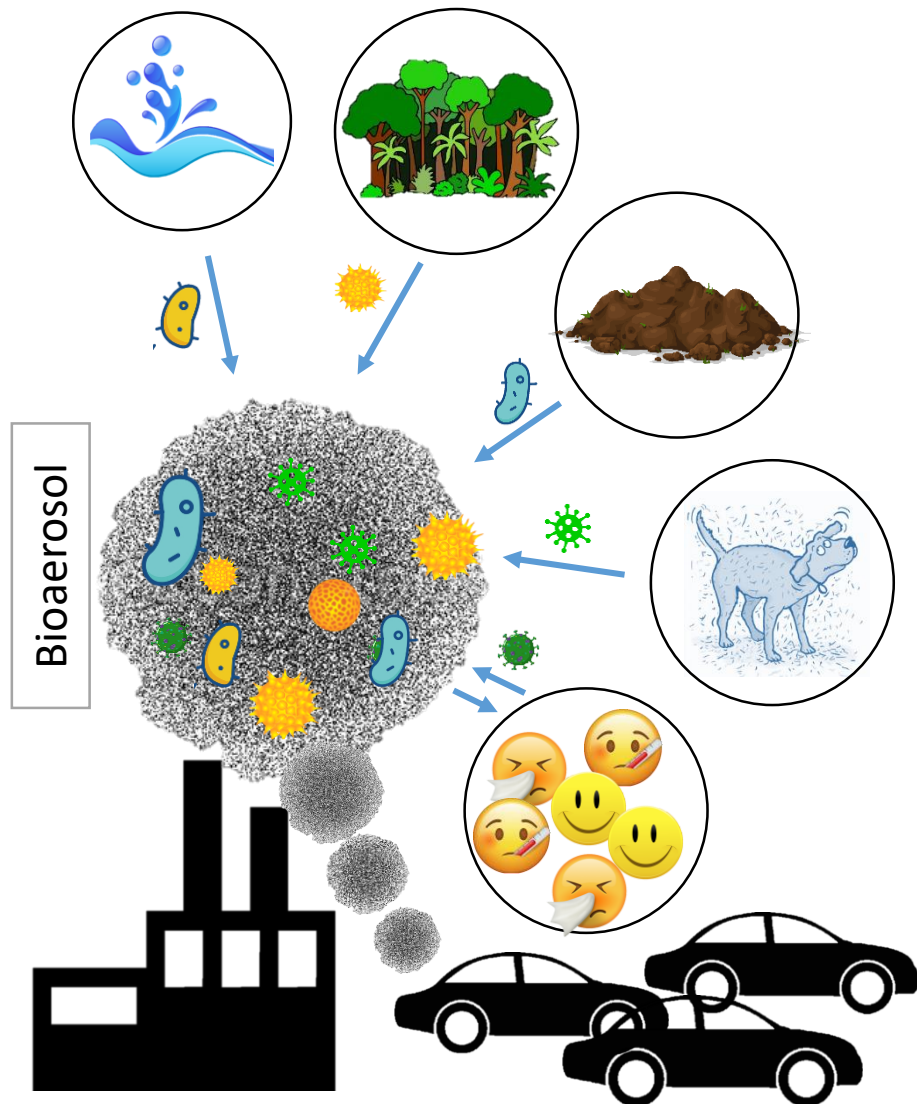
Common methodology in all cities and sites



PM10 collection



# Biogenic characteristics of microparticles in big cities: structure of microbial community, pathogenicity and driving factors



## Expected Project Outcomes:

The obtained data will serve to characterize the role of green infrastructure, anthropogenic load and type, climate and seasonality in shaping chemical and microbiological characteristic of particulate matter and hence in determining the quality of the air in the cities.

Will be identified the distribution and activity of potentially-pathogenic agents. Will be evaluated whether their presence in PM is linked to the typical seasonal peaks in the registration of certain health disturbances.

All these knowledge will serve to develop measures for the improvement of the air quality in urban environment and to support decision-making in the field of environmental design, planning and sustainable development of the cities.

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