

The effects of exposome modification on human health: the overview of NBFC spoke 6 projects

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Background: (max 50 words) 77 words

The exposome aimed at describing how environmental exposures that an individual encounters throughout life impacts human biology and health. Exposome encompasses external (i.e., climate, lifestyle) and internal factors (i.e., inflammation, microbiome). The variation of these domains and their combination could impact on human health as well as on One Health.

Methods and Results:

The National Biodiversity Future Center (spoke 6) is developing several activities to study of the effect of exposome modification on citizens' health.

By a bioinformatic approach, we selected epigenetic biomarkers of inflammation/oxidative stress common to non-communicable diseases (NCDs), to study how these two pathways are affected by air pollution, on cellular model of bronchial epithelial cells and on mouse models of NCDs. A nature-based intervention will be evaluated, to identify flora extracts able to counteract the effect of exposome modification. The exposome influence will be evaluated on patients' cohorts, to recognize how the exposome factors impact the individual's health status.

Conclusions and Significance:

All the data collected, loaded on the platform *Biomatrix*, will be correlated and analyzed to describe the potential association between the exposome and biomarkers of inflammation and oxidative stress, as well as the influence of nature-based solutions on the biomarkers' responses.

Keywords: exposome, human health, inflammation and oxidative stress biomarker, human cohorts.

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