

## ULTRHAS

The EU-funded ULTRHAS project will reveal the health threats posed by nanoparticles from different transport sources and provide guidance for policy development to improve air quality and health. ULTRHAS (ULtrafine particles from TRansportation – Health Assessment of Sources), which brings together partners from Finland, Germany, Switzerland, and the National Institute of Public Health (NIPH) in Norway, aims to determine the impact of Ultrafine Particles (UFPs) from different transport mode emissions on human exposure and health. It will notably clarify the importance of physicochemical characteristics and atmospheric processes by applying cutting-edge exhaust generation and exposure approaches.

The overall objective of the project, backed by more than €4 million in EU funding, is to improve risk assessment of air pollutants and to advise policymakers and regulators on more targeted mitigation measures against the emission components and sources that contribute the most to adverse effects. This will allow for development of more efficient strategies to improve urban air quality as well as promote health and wellbeing.

The concept of ULTRHAS is to test a broad range of transport mode emissions (both exhaust and non-exhaust) under highly controlled laboratory conditions and provide detailed analysis of the physical and chemical emission characteristics and biological effects, through source campaigns that will constitute the main part of the project. The researchers involved will perform a hazard ranking of transport mode emissions, and through advanced bioinformatics make predictions on how physical and chemical emission characteristics influence biological effects, and then test these predictions by investigating model UFPs with varying characteristics. The ULTRHAS testing strategy on adverse effects is based on novel advanced human cell models and exposure systems to assess multi-tissue effects, previously not applied at this scale in inhalation toxicity testing.

NIPH is the coordinator of the ULTRHAS project, which consists of nine work packages (WP). Prof. Johan Øvrevik (NIPH) leads the administrative WPs 1 and 9 on project management and ethics requirements respectively, and WP 6 on data integration, analysis, and testing. The objective of WP 6 is to determine if and how variability in biological effects of different transport mode emissions is affected by physicochemical characteristics, including size, chemical composition, and morphology, including combined effects of the various components of exhaust gases. The WP will also deliver facts about the “Trojan Horse” effect of soluble chemicals adsorbed to the particle surface.



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Link to Cordis <https://cordis.europa.eu/project/id/955390>

Link to ULTRHAS <https://www.ultrhas.eu>