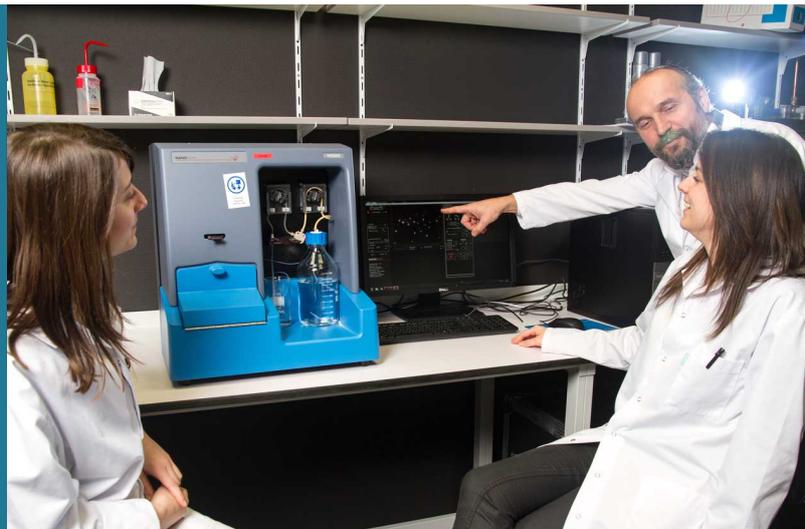# RESEARCH GROUP

Environmental Health

The Environmental Health research group focuses on the assessment of effects of exposure to pollutants and the development of tools for hazard assessment. This includes also the distribution of pollutants in the environment and particularly on airborne pollutants.

Pollution is a ubiquitous phenomenon involving many different exposure routes and therefore our expertise and projects are covering in vitro models for human safety and eco-toxicology. The group considers relevant exposure routes (e.g. the respiratory and oral routes) and invertebrate aquatic model organisms in a holistic approach.

MAIN COMPETENCES

The main expertise fields are the following:

- Measurement of air quality (outdoor, indoor).
- Development of complex 3D in vitro models for hazard assessment.
- Establishment of relevant endpoints in such in vitro models.
- Establishment of novel aquatic invertebrate models.
- Studying the interaction of particulate materials (particulate matter, nanomaterials) with biological molecules

The research team supports industries to apply the assays in an industrial setting and scale these assays to the industrial standard formats.

MAIN ASSETS

The Environmental Health research group has the following assets:

- 3D model for respiratory irritation.
- 3D model for respiratory sensitization.
- 3D model for intestinal inflammation / uptake.
- Eco-toxicological invertebrate models covering the entire water column (bacteria, algae, daphnids, gammarids).
- Gene reporting cellular assay for the detection of endocrine effects.
- Environmental monitoring vehicle.
- Advanced expertise and equipment for the characterization visualization and tracking of pollutants (including nanoparticles).
- Advanced expertise on the generation and characterization of aerosol of chemicals and nanomaterials.

SELECTED PUBLICATIONS

- Endothelial responses of the alveolar barrier in vitro in a dose-controlled exposure to diesel exhaust particulate matter, Klein SG, Cambier S, Hennen J, Legay S, Serchi T, Nelissen I, Chary A, Moschini E, Krein A, Blömeke B, Gutleb AC., Part Fibre Toxicol. 2017 Mar 6;14(1):7, doi: 10.1186/s12989-017-0186-4. PMID: 28264691
- Respiratory sensitization: toxicological point of view on the available assays, Chary A, Hennen J, Klein SG, Serchi T, Gutleb AC, Blömeke B., Arch Toxicol. 2018 Feb;92(2):803-822, doi: 10.1007/s00204-017-2088-5. Epub 2017 Oct 16. PMID: 29038838
- Gammarus fossarum (Crustacea, Amphipoda) as a model organism to study the effects of silver nanoparticles, Mehennaoui K, Georgantzopoulou A, Felten V, Andreï J, Garaud M, Cambier S, Serchi T, Pain-Devin S, Guérold F, Audinot JN, Giambérini L, Gutleb AC., Sci Total Environ. 2016 Oct 1;566-567:1649-1659, doi: 10.1016/j.scitotenv.2016.06.068. Epub 2016 Jun 18. PMID: 27328878
- Effects of silver nanoparticles and ions on a co-culture model for the gastrointestinal epithelium, Georgantzopoulou A, Serchi T, Cambier S, Leclercq CC, Renaut J, Shao J, Kruszewski M, Lentzen E, Grysan P, Eswara S, Audinot JN, Contal S, Ziebel J, Guignard C, Hoffmann L, Murk AJ, Gutleb AC, Part Fibre Toxicol. 2016 Feb 17;13:9, doi: 10.1186/s12989-016-0117-9. PMID: 26888332
- An improved 3D tetraculture system mimicking the cellular organisation at the alveolar barrier to study the potential toxic effects of particles on the lung, Klein SG, Serchi T, Hoffmann L, Blömeke B, Gutleb AC, Part Fibre Toxicol. 2013 Jul 26;10:31, doi: 10.1186/1743-8977-10-31. PMID: 23890538

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