

# NOVEL POLLUTANTS – IMPACT ON DRUG ACTION, TOXICOLOGY AND METABOLISM

Room: **Waalse Kerk**  
The Waalse Kerk is located right next to the Stadsgehoorzaal. Enter the building from the outside.

Time: **Monday 15:00 to 16:30**

Chair(s): **Martina Schmidt, Barbro Melgert**

Organizing FIGON partner(s): **GUIDE/GRIP**

Pollutants are a global public health concern and represents one of the main environmental risk factors for mortality associated with unwanted health events. Air pollution is responsible for millions premature deaths worldwide and respiratory as well as cardiovascular causes account for this mortality. The main sources of air pollution are industry, vehicles, burning of fossil fuels and burning from natural processes. Ultrafine particles, such as those from diesel exhaust, are a particular concern. Their tiny mass hinders their measurement and regulation, they contain highly reactive redox-active and noxious organic carbon species, and they enter through the lung the circulation and cells and disrupt cellular homeostasis. Solutions for the elimination of air pollutants are unlikely to emerge in the short-term and given the profound socio-economic impact of the organ damage from air pollution, preventive and therapeutic strategies are urgently required, particularly for vulnerable subgroups. How ultrafine particles cause these effects is not understood. Microplastics represent also a global health concern. Inhalation of microplastic fibres from soft fleece water, nylon socks, plastic cups from the coffee machine damage the lung – that's what's known. The mechanisms behind are completely unknown. Profound alterations on drug action and metabolism are unmet research gaps – yet to be explored. Another side of the coin is the environmental impact of drugs, and how sustainable solutions can be developed. In this session examples of exposures of individuals throughout the lifespan and impact on their life will be given. Special focus will be on the exposome.

**Invited lectures:**

- 15:00 - 15:15      **The exposome and pharmacology: an environmental complement to pharmacogenomics?**  
*Prof. Dr. Gary Miller, Columbia University, US*
- 15:15 - 15:30      **Sustainability offers the pharmacy new perspective**  
*Brigit van Soest-Segers, VIG Programmamanager coalitie duurzame farmacie*
- 15:30 - 15:45      **Is it plausible that ultrafine particles can affect the heart?**  
*Prof. F.R. Cassee, RIVM/University Utrecht, NL*
- 15.45 - 16:00      **Microplastics and human health**  
*Prof. Dr. Barbro Melgert, University Groningen, NL*

**Selected abstracts:**

- 16:00 - 16:15      **Inhalable textile microplastic fibers impair lung repair**  
*Dr. Shanshan Song, University Groningen, NL*