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Introduction

The quality of tap water is considered to be high. Recently, however, several water sources had to be restricted or even shut down because of chemical pollution from anthropogenic chemicals. Residues of perfluoroalkyl substances (PFASs) had reached the groundwater and contaminated wells in Botkyrka and Uppsala municipalities. In contrast to risks with pathogens, the occurrence of the pollutants was found by chance, and the drinking water treatment plants (DWTPs) were not aware of the risks. In the Uppsala case, time-trend analysis of certain PFASs in blood serum indicated exponential increase over time, in contrast to cohorts from other cities, and DW was identified as the main exposure source. Thus, there is a need to identify presently unknown chemicals and to improve detection of known hazardous organic micropollutants of anthropogenic and natural origin in DW to ensure future delivery of safe DW.

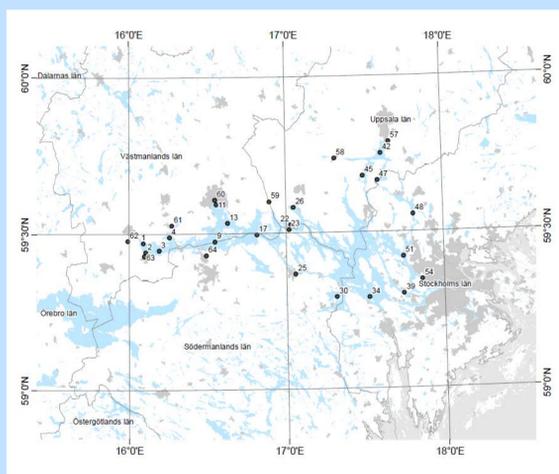


Figure 1: Map of Lake Mälaren and location of DWTP in Uppsala and Stockholm, Sweden.

Objectives

The main objective of this project is to develop methods for assessment of hazardous chemicals in drinking water by integrating chemical analysis and in vitro toxicity tests. The methods will be applied for evaluation of chemical composition and associated mixture toxicity at various steps in drinking water treatment, and for the impact of dissolved organic carbon (DOC, brown water). In addition, consumer's sense-making of risks from tap water will be analysed.

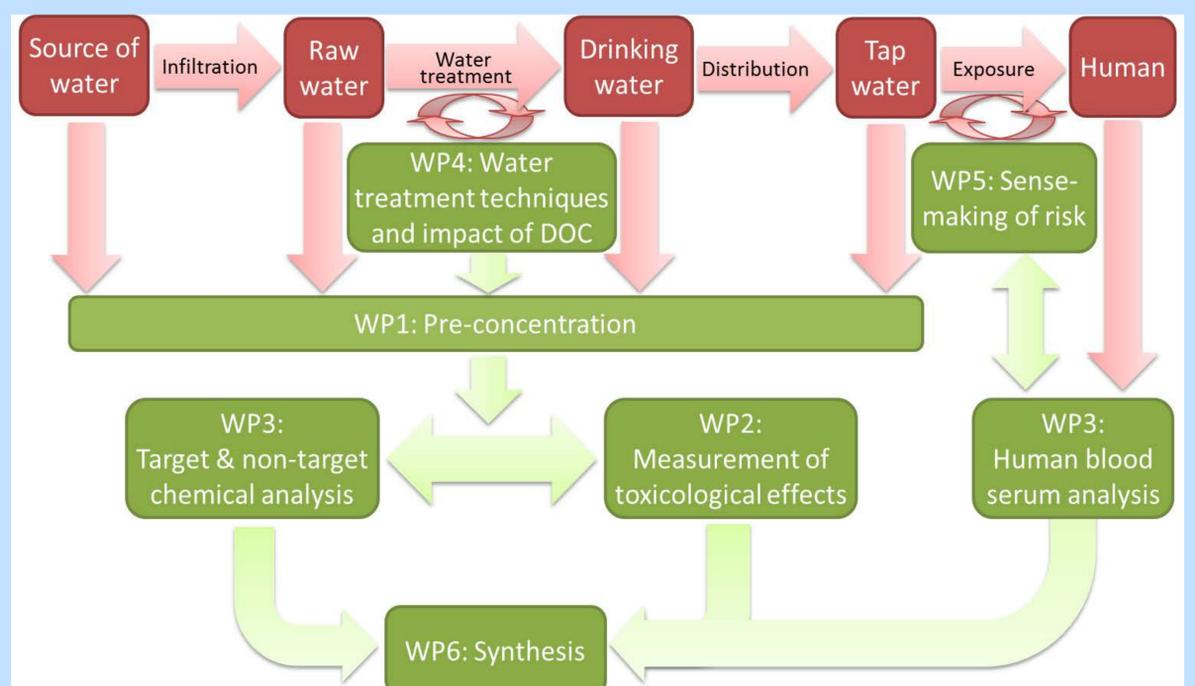


Figure 2: Structure of the SafeDrink project

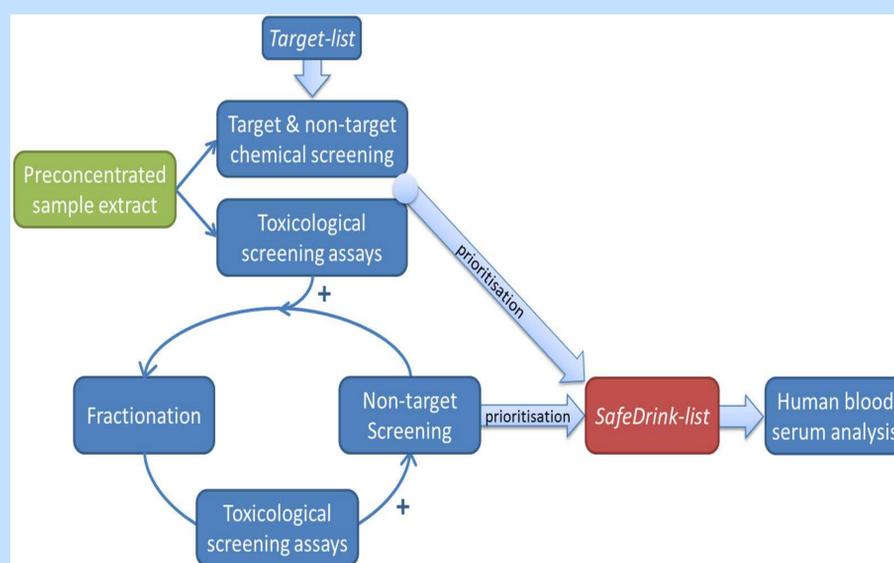


Figure 3: Illustration of the integrated toxicological and chemical approach of this project for the prioritization of toxic pollutants

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