WWTF Project ESR17-070

# The impact of Giardia spp. as a reference pathogen in urban water systems


## Abstract

Due to the current and future global trend of migration into cities, the quality of urban environments plays an increasingly important role in public health. The aim of the current project is to develop cutting-edge methodologies for generating a new wise-city planning tool for supporting sustainable water management. Following a holistic approach an interdisciplinary team of researchers will investigate the potential sources and flow paths of waterborne pathogens and the associated health impact of using urban surface waters for recreation and drinking water production (riverbank filtration). The waterborne pathogen Giardia that causes gastrointestinal infections in humans and animals will be used as reference pathogen. As study area, the wastewater impacted River Danube and surrounding urban surface waters were selected. The microbiological quality of wastewater and urban surface waters at multiple levels including Giardia, standard fecal indicators and microbial source tracking markers will be studied. Giardia isolates from stool and water samples will be genotyped. The data obtained will flow into a hydrological water quality and risk model of the urban study site including the potential exposure routes. The model will be used to assess the risk of acquiring fecal pathogen infections for highly socially relevant future scenarios like climate change, changes in management strategies, migration and urbanization.



Scientific disciplines:
106022 - Microbiology (50%) | 105304 - Hydrology (30%) | 107007 - Risk research (20%)

Keywords:
Giardia, molecular epidemiology, zoonoses, surface bathing water, Microbial Source Tracking, Quantitative Microbial Risk Assessment



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Further links about the involved persons and regarding the project you can find at
https://archiv.wwtf.at/programmes/environmental_system/ESR17-070