

*"Horizontal transfer of antibiotic resistance genes in urban water systems"*  
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*Horizontal gene transfer between different bacteria is a main driver in the dissemination of antimicrobial resistance genes (ARGs). This way pathogenic bacteria can acquire resistance to multiple antibiotics, an increasing global public health concern. Plasmids are key vectors of horizontal gene transfers shaping bacterial evolution and traits dissemination. Our current knowledge on plasmid transfer and genetic diversity is however to a large extent limited to those able to replicate and maintain in cultivable hosts. I will present a selection of new culture-independent methods to characterise plasmid encoding ARGs and to study their dissemination in urban water systems. We have developed a targeted metagenomic – metamobilomic – approach, where only plasmid DNA from complex samples is isolated and sequenced. Using this approach, the potential of the indigenous microbial community to act as a reservoir for ARGs was investigated. Furthermore, conjugational transfer was tracked, through a well-established dual labelling fluorescent bioreporter system developed by my group. Our result emphasise that the urban water systems are reservoirs for mobile ARGs and potential hotspots for horizontal gene transfer.*

**BIO/CV:**

*Søren J. Sørensen obtained his Ph.D. from University of Copenhagen. He has been at US EPA as post doc and Associate Guest Lecturer at School of Biology Macquarie University, Australia while maintain a tenured position at University of Copenhagen, where he has been Professor since 2005. The main objective of the group's studies is to evaluate the extent of social interactions in natural microbial communities with special focus on environmental microbiomes, biofilm formation and horizontal gene transfer within the natural communities.*