**Design and use of bacterial bioreporters for measuring organic pollution and their degradation**

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Environmental pollution is typically measured using chemical analytics on samples taking from the respective sites or compartments, and purified by a variety of extraction techniques. In contrast, living cells can also be used to assess the presence of toxic compounds, which can have a variety of advantages, such as being field-applicable, potentially more cost-effective and rapid, and allowing a direct assessment of the chemical's bioavailability and toxicity.

In this presentation I will present the concept of bacterial bioreporters, which are engineered strains to provide simple and rapid measurable out to specific chemical targets or groups of related chemicals (van der Meer & Belkin 2010). The main strategies for strain design and response calibration will be discussed. I will further illustrate current and ongoing efforts to miniaturize and include living bacterial bioreporters in automated devices that can be deployed to monitor the environment for a number of recurring toxic chemicals.

van der Meer, J.R., and Belkin, S. (2010). Where microbiology meets microengineering: design and applications of reporter bacteria. Nat. Rev. Microbiol. *8*, 511-522.