

Fluorescent imaging of bacteria and friends: providing tools for enhancing microbiome and microbiological research

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Fluorescent microbial imaging has emerged as an indispensable tool in microbiological research. The ability to identify and describe specific bacteria and other microorganisms has been instrumental in the emerging field of the microbiome. Furthermore, multiplexing combined with high resolution microscopy enables in-depth microbial community characterization *in situ*.

Here, we examine different synthetic tools that we offer for the highly evolving microbiologist toolbox: fluorescent antibiotics, fluorescent metabolic labeling and specific FISH probes for bacteria and fungi. These fluorescent imaging tools are engineered to provide data on an extensive set of topics, ranging from bacterial colonization dynamics, host physiology and clinical diagnostics to antibiotics mode of action (MOA), antibiotic resistance and toxicity. We will focus on our currently available products and strategies, as well as on future perspectives in this field. We strongly believe that enhancing and diversifying high quality fluorescent imaging tools for microbiological research will inevitably open new venues for high-standard and complex microbiome-related research.