TRADITIONAL AND NEXT-GENERATION PROBIOTICS, INFLAMMATION, AND INTESTINAL DYSBIOSIS

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The interaction between intestinal cells, the microbiota, and the innate immune system is critical for intestinal homeostasis and is disrupted during the dysbiosis observed in many diseases.
The mechanisms of action for the majority of probiotic strains described in the literature remain largely unknown. Even for probiotic strains showing promise for human health, such as the Ex01 strain of *Faecalibacterium prausnitzii*, although their main molecular effectors have been identified, the mechanisms of action underlying the host's response

to these effectors remain poorly understood. There is therefore a need for faster and more cost-effective alternative experimental models to characterize these mechanisms. In collaboration with the ProbiHôte team (Micalis, INRAE), we are developing a new experimental approach to simply characterize the protective effects of bacterial strains and their various fractions in models of post-infectious dysbiosis induced in *Drosophila* by oral ingestion of the phytopathogen ECC15. For two strains, as part of a doctoral thesis, we (i) evaluate their effect on *Drosophila* survival post-infection and (ii) characterize their effects on the magnitude of the phytopathogen-induced inflammatory and cellular responses of the intestinal epithelium.

In particular, we are assessing the expression of genes encoding antimicrobial peptides (AMPs) or cytokines with the aim of identifying molecular mediators in these bacterial strains by leveraging the genetic and cellular tools of *Drosophila*.

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