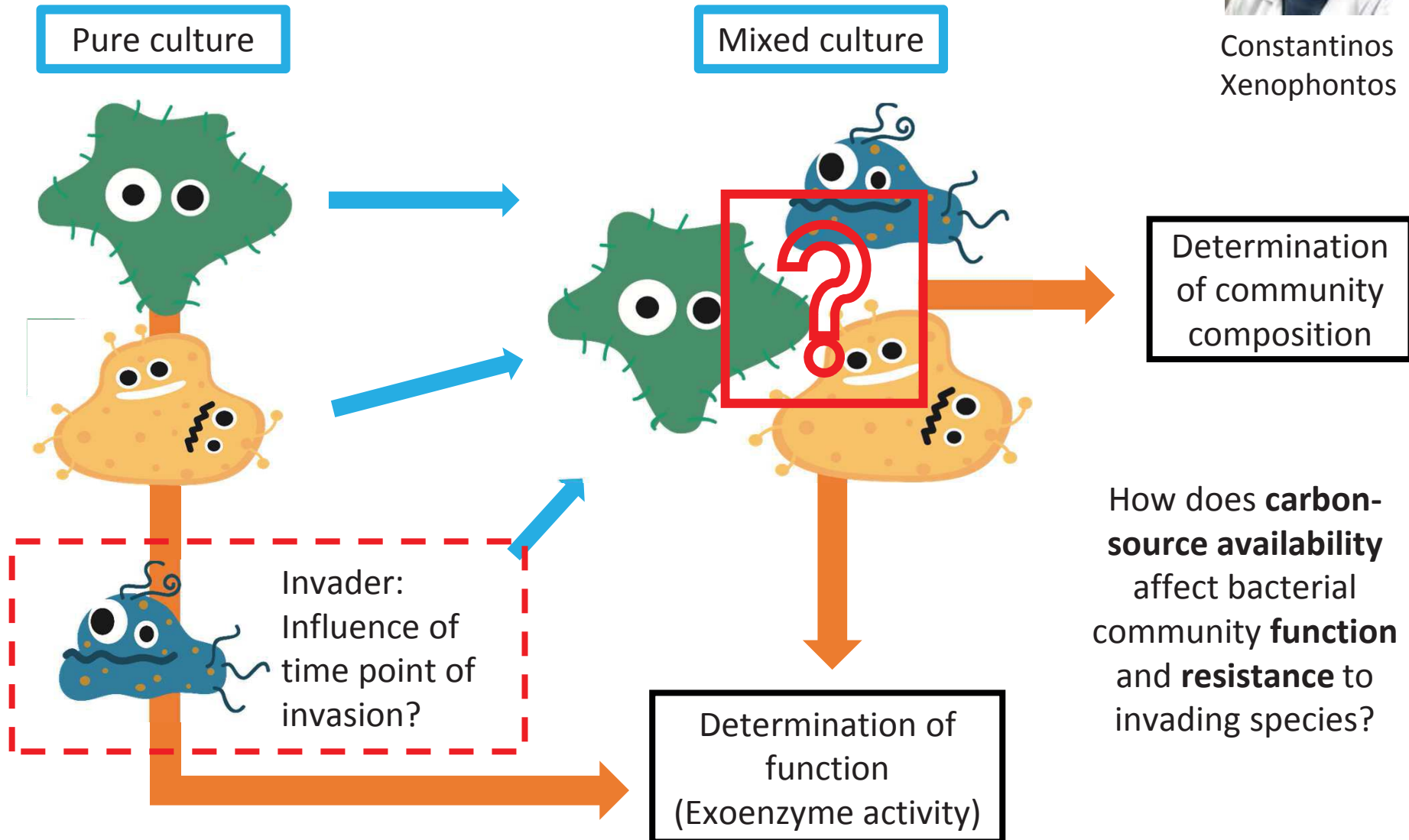


Party crashers: Investigating substrate-conditioned bacterial communities' resistance to invaders

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Bachelor's Project in Microbial Ecology

Party crashers: The effects of invasive species in substrate-conditioned bacterial communities

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Studies from both natural and experimental bacterial communities show that species interactions are dependent on the environmental context in which bacteria coexist. Species interactions can, in turn, change community functions and biodiversity. As one of the simplest examples, such a difference in environmental context can be the presence or absence of a carbon source, whose influence can result in interactions ranging from strong competition to commensal cross-feeding.

Here we will use groundwater bacterial isolates to form mixed communities, consisting of 3 species. We will grow these in presence or absence of cellulose as a carbon source, and measure metabolic function via exoenzyme activity assays. This will allow us to first determine how bacterial species differ in their ability to hydrolyze cellulose and then how pre-incubation with cellulose affects the ability of the community, as a whole, to degrade it. We will also investigate whether an invader, a species added after establishing a bacterial community, can influence the diversity and function of the community.

Additionally, whether the ability of an invader to degrade cellulose has any effect on its invasion success.

We will employ a range of physiological, biochemical and molecular techniques to help us study activity changes in bacterial cultures and species diversity changes in communities.