



Showcasing research by Alshareedah and Kumar, Microbial and Biome Sciences, Bioscience Division, Los Alamos National Laboratory, New Mexico, United States of America.

Multiphasic droplet microfluidics platform for controlled bacteria and mammalian cell co-culture

We present a microfluidic platform for high-throughput co-culture of mammalian cells and bacteria using multiphasic droplets. By integrating photopolymerizable hydrogels with polymer phase separation, core-shell droplets are formed with distinct compartments that support cell adhesion and bacterial growth. The system enables both direct and indirect co-culture through tunable droplet architectures. These stable, customizable droplets sustain co-culture for over 24 hours and are compatible with fluorescence-based sorting, providing a scalable and versatile approach for studying host-microbe interactions.

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