

Device for high-throughput studies of polymicrobial interactions



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Challenge: Although studies investigating polymicrobial interactions have surged in recent years, no high-throughput device is currently available for this purpose.

Solution: We designed a well-plate that can be configured with semi-permeable membranes to interconnect two wells. This allows the cultivation of several bacterial species in spatial separation while enabling interactions through diffusible compounds. The well-plate is in standardized dimension which allows it to be used with multimode plate readers.

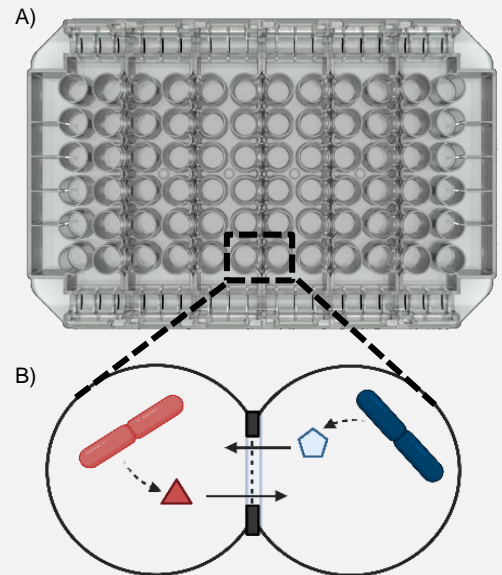


Figure 1: Schematic overview of the device.
A) Plate design illustrating the device. B) Sketch showing the functionality of the device. Two wells are separated by a membrane, allowing the diffusion of compounds while keeping the bacteria apart.

Invention Well plate in standardized dimensions (e.g. 96-well).
Fits standard hardware such as multimode plate readers.
Customers can select from pre-assembled devices.

Use A set of wells is connected by a channel and a permeable membrane. The setup allows for chemical sensing, signalling, and the exchange of metabolites between two or more wells without any direct physical contact. This allows to study complex interactions between multiple pathogens and host factors.
Enabled for robot/automated systems to investigate large numbers of combinations in high-throughput settings.

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Video <https://youtu.be/agPwL3G0w7k>

Patent Utility patent filed

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