

# Method and Device for Autonomous Separation of Microorganisms and to Grow and Isolate Novel Species with Unknown Growth Requirements

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## Description

Existing microbial culture/cultivation techniques involve the movement of microbial cells from their natural environments to artificial environments, wherein such cells are further manipulated prior to culturing. As a result, many cells targeted for cultivation are possibly damaged even before the culture. Some of the other prior art techniques involve the use of porous membranes comprising multiple pores to cover and separate the growth chambers. Such techniques lead to the establishment of mixed cultures inside the growth chambers. **This approach enables the development and use of a nano-device for autonomous separation of microorganisms along with growth and isolation of novel species with unknown growth requirements.**

## Value Proposition

The device/method:

- Comprises a nano-channel with diameter of a single microbial cell (~ 500-1000 nm)
- Avoids manipulation of cells as observed with conventional approaches
- Speeds up the process of isolation and cultivation of novel species by more than 10-fold, enabling a transformational impact on microbiology
- Allows for the separation of microbial mixes into mono-specific cultures, without participation of a researcher
- Avoids the nutrient preloading requirement as naturally occurring growth factors automatically diffuse into the device
- Is effectively used in any habitat on the planet, including extreme environments inaccessible to humans such as polar regions, deep ocean trenches, and extraterrestrial bodies
- Would be commercially useful for isolation of novel biologically active compounds

## Intellectual Property Status

PCT Application PCT/US13/33968

## License Status

Available for license

