

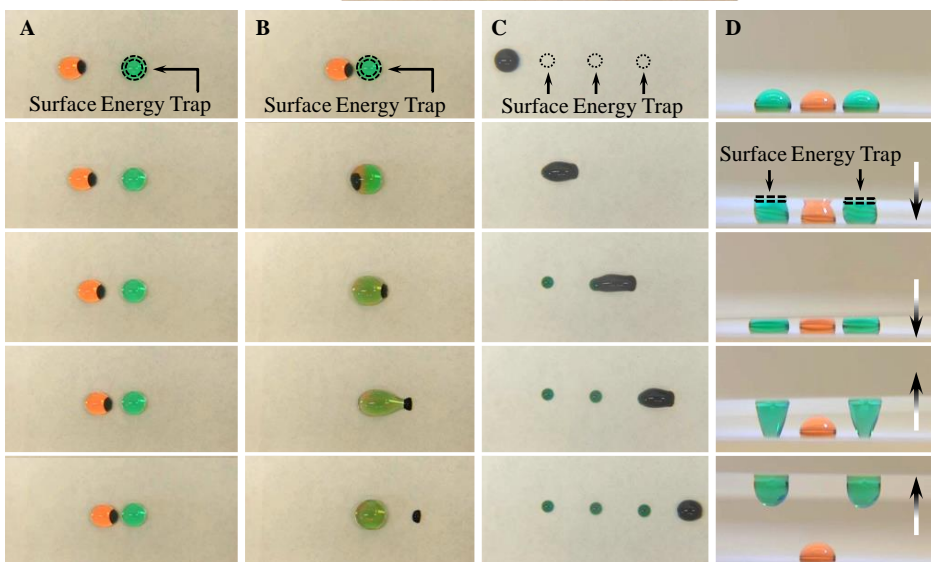
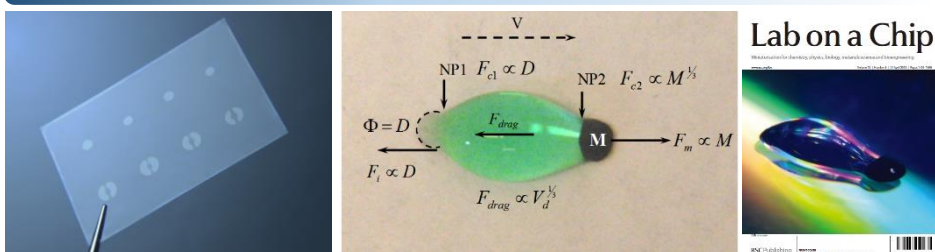
# Magnetic Digital Microfluidics-Based Detection Platforms For Bacteria Analysis

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## Introduction

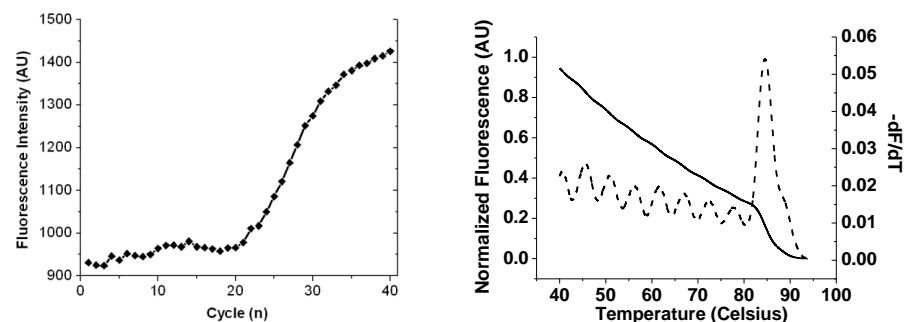
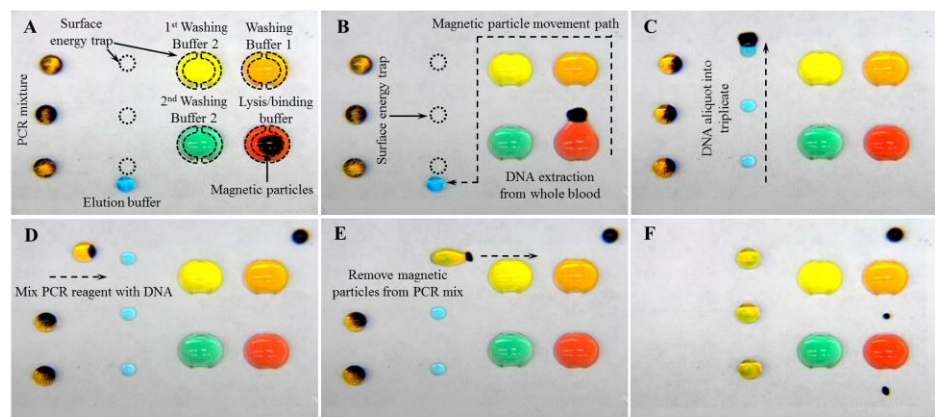
- Magnetic digital microfluidics manipulates droplets with magnetic force
- Droplets as virtual reaction chambers
- Dual functionality of magnetic particles both as droplet actuator and as solid substrate for molecule adsorption
- Surface assistive features, both physical structures and chemical modifications, improves droplet manipulation

## Droplet Manipulation



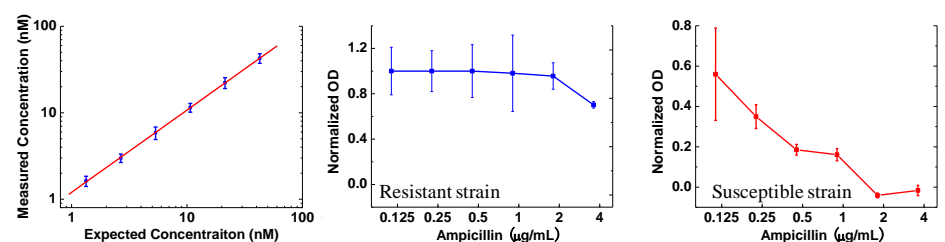
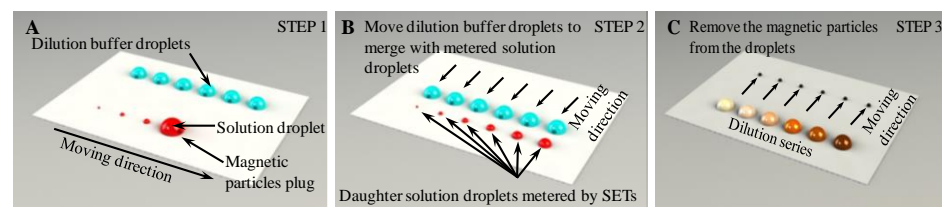
Chemically modified surface energy traps for assisted droplet manipulation on the magnetic digital microfluidic platform. a) moving and merging, b) mixing and particle extraction, c) splitting and aliquoting and d) cross-platform transfer, is accomplished on the magnetic digital microfluidic platform with the assistance of the surface energy traps.

## Sample-to-Answer



Multiplexed sample-to-answer diagnostics on the surface energy trap-assisted magnetic digital microfluidic platform. This platform can be used for sample-to-answer analysis of bacteria by PCR or isothermal amplification techniques.

## AST



Antimicrobial bacterial susceptibility testing (AST) on a magnetic digital microfluidic platform. The surface energy trap is used to dispense droplets and create drug serial dilution for AST.