THE UNIVERSITY OF ARIZONA
COLLEGE OF ENGINEERING
Biomedical Engineering

DEPARTMENT OF BIOMEDICAL ENGINEERING SEMINAR SERIES

PRESENTS

Tiffany Ulep

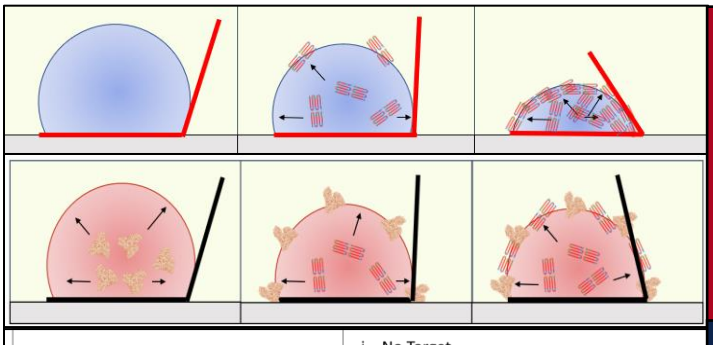
BME PhD Candidate

Biosensors Laboratory

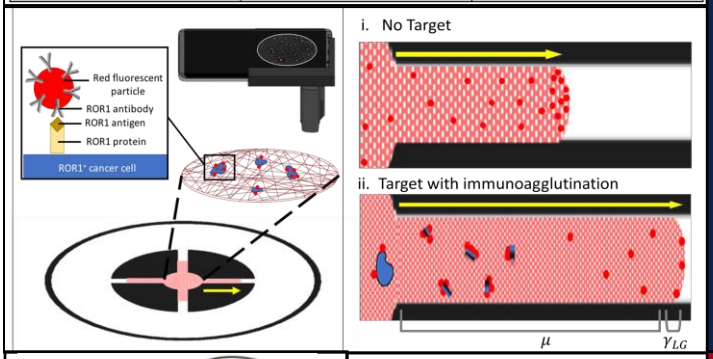
PI: Dr. Jeong-Yeol Yoon

"Diagnostic biosensors for detection of blood-derived biomarkers"

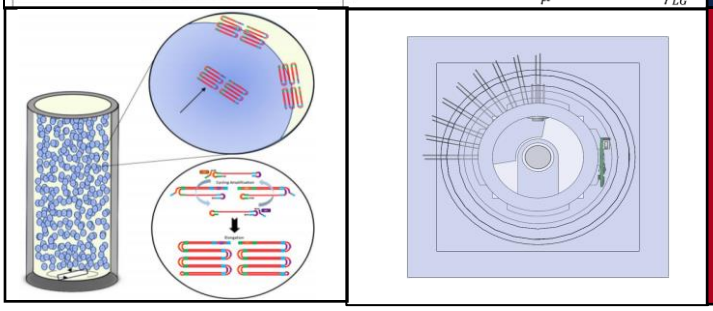
ABSTRACT:



Interfacial effect-based quantification of droplet isothermal nucleic acid amplification for bacterial infection



Dual detection of ROR1$^+$ cancer cells using on-chip fluorescence imaging and capillary flow dynamic-based paper microfluidics



Emulsion nucleic acid amplification for bacterial identification via angle-dependent light scatter analysis

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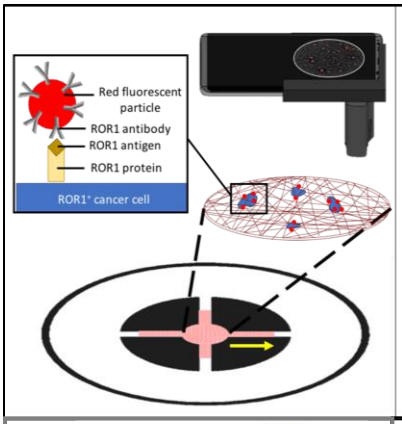

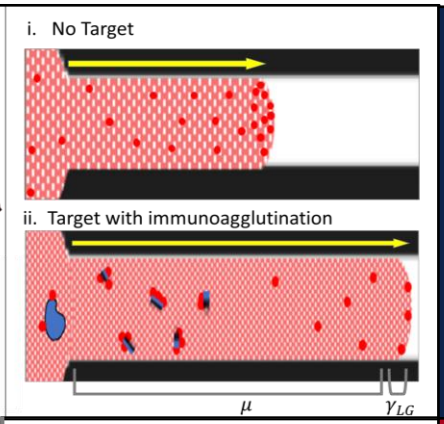

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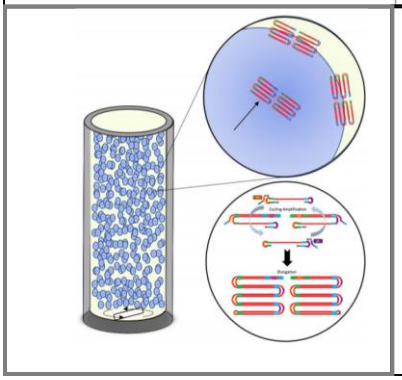

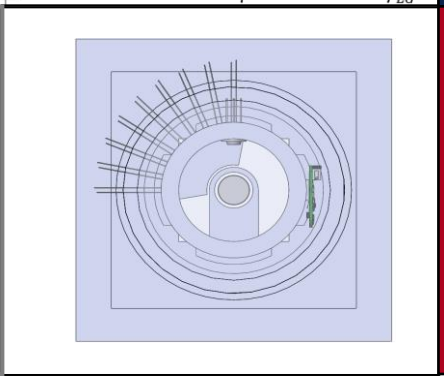

Emulsion nucleic acid amplification for bacterial identification via angle-specific light scatter analysis

This presentation will focus on the design and development of inexpensive, easy-to-use, field deployable diagnostic devices for the early detection/analysis of clinically relevant biomarkers from blood samples. The aims of this research is to decrease time-to-results, minimize reagent and sample handling, and incorporate automated simple optical detection and user interfaces. Targets-of-interest include nucleic acids of bacterial pathogens (specifically antibiotic resistant genes) and hematological cancer cells. Biosensing techniques that will be discussed include geometrical and interfacial effects, fluorescent particle immunoagglutination, capillary flow dynamics, and angle-specific light scatter analysis. Point-of-care prototype platforms that will be discussed include a static droplet silicone chip, a dual-layer paper microfluidic chip, and a water-oil-water dynamic microemulsion system.

Monday, October 28th, 2019
12:00-12:50 pm, Keating Bldg., Room 103
Refreshments will be available at 11:50 am

Host: Dr. Jeong-Yeol Yoon
jyyoon@email.arizona.edu

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