Message from the Chair
What is BME?
BME at a glance
News & Events
- Faculty News
- Student/Post-doc News
- Newsletters
- Events

BME Positions
Location & Facilities
Directions & Maps
Contact Information
Search

FACULTY NEWS

Return to faculty news.

"Rapid Identification and Antimicrobial Susceptibility Testing of Bacteria: 2009"

Alan Hunt, PhD, Duane Newton, PhD, and Brandon McNaughton, PhD
Second year of funding - 2009 funding: $100,000; funding to date $200,000

Emergent antimicrobial resistance in bacteria is one of the world's most pressing health problems, and a major contributor to patient morbidity and mortality. Both the generation of new resistant strains and adverse effects of existing strains are effectively combated through accurate diagnosis and susceptibility testing of the specific pathogen responsible for an infection. But this is impeded by the slow turnaround of existing tests, two-four days. The team is fine-tuning an instrument that can perform identification and rapid antimicrobial resistance measurements on the time-scale of hours, substantially outperforming existing diagnostics.

The development of new antibiotics provides one avenue to address resistance, but alone this has proven to be a partial and temporary remedy in the ongoing battle against increased antimicrobial resistance. Instead, both new antimicrobials and technologies that will allow physicians to quickly determine appropriate antimicrobial therapy need to be developed. With current clinical instruments requiring several days to obtain results, there is a clear need to develop rapid means of identifying bacteria and determining their respective susceptibility to antibiotics, on the time-scale of hours rather than days. Fast methods for identifying antibiotic susceptibility are thus needed both to improve the efficacy of therapy, and to impede the severe health problems caused by rising bacterial resistance.

This group has demonstrated technology based on asynchronous rotation of magnetic microbeads that enables rapid determination of antimicrobial susceptibility in minutes to hours. Building on the work completed in their first UM Coulter award, their second year objective is to design and validate a manufacture-ready antimicrobial susceptibility testing card that implements the asynchronous rotation method and that easily interfaces to an alpha prototype card reader.

As of April 2009, the team has developed and received a prototype and will soon move to clinical trials.

A list of all the U-M Coulter funded projects is found on the UM BME Coulter Site.

Posted on October 20, 2009, 8:21 am