



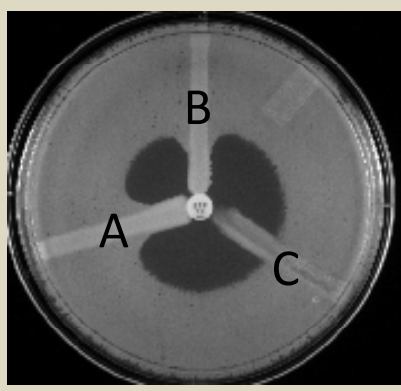
# BUGS vs DRUGS

## Question of the Week

### Do you know what the modified Hodge test is?

The *Klebsiella pneumoniae* carbapenemase (KPC) occurs in Enterobacteriaceae and can confer resistance to all  $\beta$ -lactam agents including carbapenems. Therefore, identifying carbapenemase-producing strains from clinical samples can be critical in ensuring effective antimicrobial selection for difficult-to-treat infections.

The Modified Hodge Test (MHT) allows for the detection of carbapenemase production by isolates of Enterobacteriaceae, such as *Klebsiella pneumoniae*. Carbapenemase production is detected by the MHT when the test isolate produces the enzyme and allows growth of a carbapenem susceptible strain (such as *E. coli* ATCC 25922) towards a carbapenem disk. The result is a characteristic cloverleaf-like indentation (see picture).



In the above sample, test Strain A is positive for carbapenemase, allowing the *E. coli* strain to grow towards the center of the plate (towards the carbapenem disk) along the test organism growth streak. Strain B is the positive control while Strain C is the negative control (no growth along the organism growth streak). Incubation should last between 16-24 hours.

1. Anderson K, Lonsway DR, Rasheed JK, Biddle J, Jensen B, McDougal LK, et al. Evaluation of Methods to Identify the *Klebsiella pneumoniae* Carbapenemase in Enterobacteriaceae. *J Clin Microbiol*. 2007;45:2723 .
1. Lee K, Chong Y, Shin HB, Kim YA, Yong D, Yum JH. Modified Hodge and EDTA-disk synergy tests to screen metallo--lactamase-producing strains of *Pseudomonas* and *Acinetobacter* species. *Clin Microbiol Infect*. 2001;7:88–91.
1. Clinical and Laboratory Standards Institute. Performance standards for antimicrobial disk susceptibility tests; Approved standard 10th ed. M02-A10. Wayne, PA: Clinical and Laboratory Standards Institute; 2009.