

## Salus Discovery, LLC

### ***The Self-enclosed “Kit-On-A-Lid-Assay”(KOALA) Cultured Based Drug Susceptibility and Resistance Assay***

Within health fields, the emergence of antibiotic resistant bacteria and multidrug resistant organisms continues, threatening to out-pace antibiotic development. Today, antibiotic resistance is an immanent public health threat as antibiotic resistant bacterial infections are becoming commonplace. While large centralized hospitals are equipped to quickly identify antibiotic susceptibility and resistance, small clinics, nursing homes, and long-term acute care facilities are currently ill equipped to quickly identify antibiotic susceptibility. As a result, the delayed response to infection puts the patient and the community at risk due to delayed, inappropriate antibiotic treatment. For decades, results from culture-based susceptibility and resistance assays have guided antibiotic treatment choice and suggested minimum inhibitory concentration (MIC) for treatment. Culture-based methods provide a robust, timetested approach to susceptibility testing that will continue to serve as the “gold standard” complement to PCR-based molecular tests for which the resistance gene must be known. While well utilized, these assays have remained relatively unchanged outside of the introduction of automation, limiting their utility beyond centralized, high infrastructure locations. ***We propose a self-enclosed “Kit-On-A-Lid-Assay” (KOALA) culture-based drug susceptibility and resistance assay that requires minimal culture infrastructure while maintaining automation-like precision and high operator safety. This assay facilitates flexible/modular testing in community clinics (as opposed to centralized labs), which results in faster treatment of multidrug resistant pathogens, thereby improving patient outcomes, reducing inappropriate antibiotic use, and limiting the spread of antibiotic resistance.***