In a world of rapidly evolving microorganisms, it is critical to expeditiously identify and develop new and novel antimicrobial compounds. To meet those demands, ImQuest BioSciences offers MicroSENS – a full service antimicrobial agent development program uniquely combining \textit{in vitro}, \textit{ex vivo} and animal model efficacy and toxicity evaluations.

The foundation of the MicroSENS program for development of new experimental compounds consists of a select panel of clinically relevant wild-type and antibiotic resistant microorganisms to assess the efficacy, range and mechanism of antimicrobial activity, and mechanisms of resistance.

**Microbe Panel of Bacterial and Fungal Pathogens and Clinical Specimens**

- Indication-specific microorganisms
- Clinically-relevant Gram negative and Gram positive organisms
- Anaerobic organisms
- Sexually transmitted organisms

**Phenotypic and Genetically-Defined Drug-Resistant Microbe Panel**

- Carbapenam resistant
- Extended spectrum beta-lactam resistant (ESBL)
- Methicillin resistant
- Penicillin resistant
- Vancomycin resistant
- Linezolid resistant
- NDM-1 resistant
- Multi-drug resistant

**\textit{In Vitro} Antimicrobial Evaluation**

- CLSI broth-based microdilution for MIC and MBC determination
- Kill-curve analysis
- Analysis of bactericidal versus bacteriostatic differentiation
- Post-antibiotic effect
- Inhibition of biofilm development
- Combination antimicrobial evaluations
- Resistance selection
- Mechanism of action studies:
  - \textit{In vitro} generation and characterization of spontaneous resistant mutants
  - Radiolabeled precursor incorporation analysis

**\textit{In Vivo} Evaluation of Antimicrobial Agents**

- Neutropenic thigh model
- Systemic/sepsis model
- Custom models (upon request)
- CLSI-based serum bactericidal effect (for some models)

**Additional MicroSENS Antimicrobial Testing Services**

- Pre-formulation analysis and formulation development
- Microbial quantification and identification
- Drug permeability and solubility evaluations (PharmaSENS)