

Microbiology Laboratory Services

Southwest Research Institute® (SwRI®) offers advanced research capabilities in biological science, combining chemical expertise with biological strategies for innovative problem solving. Using the latest technologies in state-of-the-art laboratories, SwRI scientists provide multidisciplinary, integrated approaches to meet client requirements.

Microbiology

The SwRI Microbiology Laboratory functions at Biological Safety Level 2 (BSL-2) and is equipped with a Class II, Type A2 biological safety cabinet. SwRI scientists and technicians have expertise in a wide variety of applications, including:

- Bacterial growth analysis and experimental synthesis
- Quantification and identification
- Biological dye studies
- Microbial limits
- Toxicity and susceptibility studies
- Enzyme utilization and deployment studies
- Biocide agent validation
- Field and environmental sampling/collection

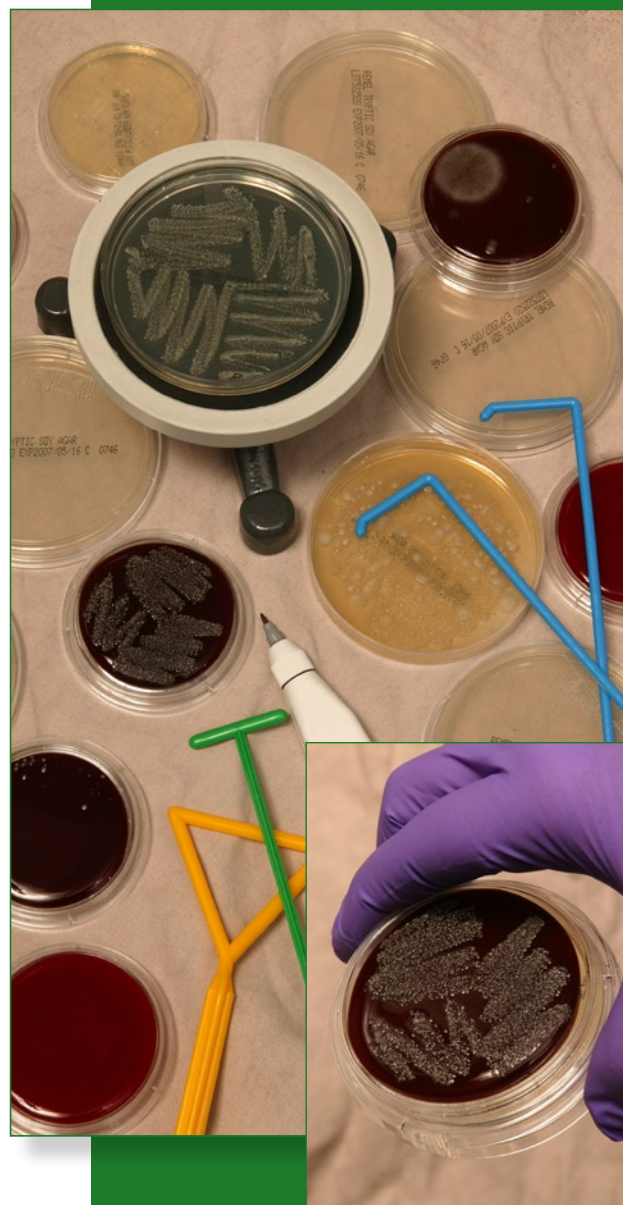
SwRI scientists are exploring new developments in microbial drug delivery, sustainability of decontamination methods, controlled-release biocides for food and textile extended shelf life, alternative fuel sources such as microbial fuel cells, spore-detecting biosensors, and biodegradable studies using enzymes and microorganisms.

Technical staff members have significant field and laboratory expertise with pathogenic and non-pathogenic *Bacillus* species and their bacteriophages; BSL-2/3 design, operation, procedures and training; and environmental surface testing for detection of general enterics and *Staphylococcus* species. Other laboratory evaluations include growth analysis (various media, concentrations and environmental parameters), biological dye and enzyme utilization studies.

Controlled Biological System (CBS) Programs

SwRI has conducted several entomology-based projects, including:

- Entomology-related technology areas such as a training and testing facility for European honeybees in detection of dinitrotoluene (DNT)
- Collection of local insect species to investigate biohazards in South Central Texas
- Studies of *Manduca sexta* to test moth flying patterns in response to detection of synthetic pheromones

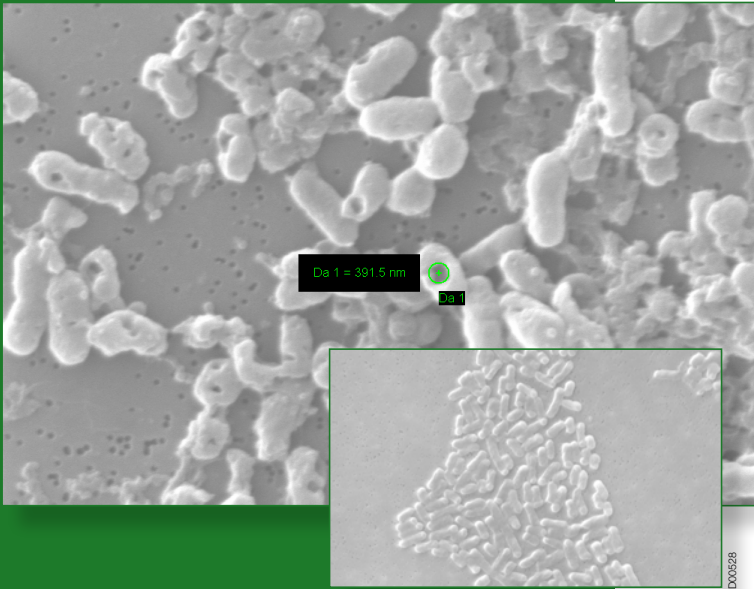


Various media displaying microbial differentiation

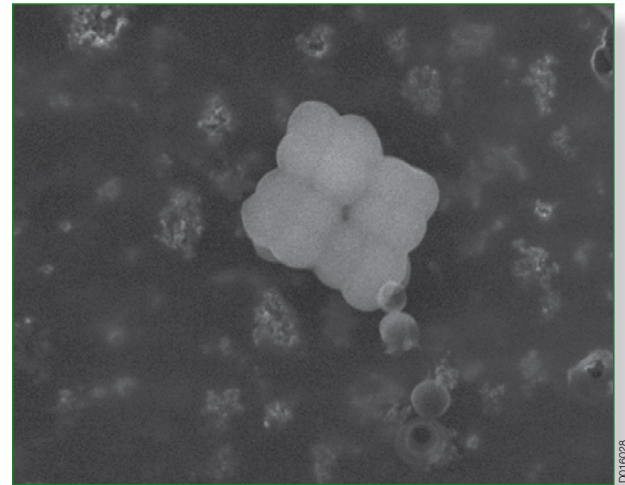
Inset: Blood contact plate used to test environmental surfaces for microbial contamination by hemolytic organisms



Southwest Research Institute BSL-2 facility



E. coli treated with lytic enzyme in development of bacterial ghosts
 Inset: *E. coli untreated control, sputter-coated with gold-palladium mixture and imaged via ESEM*



Environmental scanning electron microcopy used to image microbes subjected to lysis procedures (shown: control sample for Micrococcus luteus)



Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops and offices for more than 3,200 employees who perform contract work for industry and government clients.

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