



▼ LEADERSHIP ACROSS THE BOARD

NCFST offers a comprehensive food microbiology program to assist food industry members in assuring the safety and quality of their products. Current projects undertaken by NCFST scientists range from developing and validating detection methods for viruses in fresh produce in order to determine survival times, demonstrating the use of new molecular tools to investigate key stress mechanisms in the survival of *Salmonella* and *Listeria* in food processing conditions, and ongoing investigations into the reemergence of bacterial sporeformers such as *Clostridium botulinum* as a food safety concern.

As a cross-platform research area, NCFST's Food Defense and Operational Risk Management Program provides critical investigative capabilities to the Food Microbiology Platform in its investigations into the behavior of unconventional pathogens in foods, the effect of food processing on such pathogens, and the appropriate decontamination methods for product and facilities. Although the government has access to many laboratories able to provide analytical detection methodology, few possess NCFST's capabilities in the area of food defense analyses and facilities, including a newly completed Biosafety Level 3 (BSL 3) microbiology laboratory and biocontainment pilot plant.



▼ OUR CAPABILITIES

- >> Extensive experience in *Listeria*, *Salmonella* and *E. coli* methods
- >> Top-notch scientific support studies on microbial growth, survival, niche development, stress response, inhibition and inactivation
- >> Outstanding analytical capabilities, including immunocapture, PCR, ribotyping, protein fingerprinting, epifluorescence microscopy, solid phase cytometry and impedance
- >> State-of-the-art research facilities, including a BSL 3 microbiology laboratory (opening soon) and cGMP, biocontainment and food processing preservation technologies pilot plants

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NATIONAL CENTER FOR FOOD SAFETY AND TECHNOLOGY
Martin Cole, Ph.D., Director

The National Center for Food Safety and Technology (NCFST), founded in 1988, is a unique research consortium of the U.S. Food and Drug Administration (FDA) Center for Food Safety and Applied Nutrition (CFSAN) Division of Food Processing Science and Technology, Illinois Institute of Technology (IIT) and the food industry. The NCFST is the only center where industry can work collaboratively with FDA scientists on food safety, nutrition and technology research.

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FOOD MICROBIOLOGY PLATFORM



Food microbiology unites the disciplines of microbiology and food technology, facilitating advances in providing safer and healthier food for the world. Developments in food technologies and consumer demand for fresh-tasting, minimally processed foods that are fast and convenient to prepare, have extended shelf-life and offer health promoting benefits create challenges to ensuring food safety throughout the supply chain.

At NCFST, experienced food microbiologists address these challenges by investigating all aspects of the existence, survival and behavior of microorganisms in order to better understand their impact on the safety and stability of our food system—and to devise better ways to mitigate potential harmful effects, whether through advanced processing and preservation techniques or through enhanced food safety management systems.



NCFST's world-class microbiology, toxin and virology research provides food industry members and regulatory stakeholders with the knowledge needed to make real-world business and policy-making decisions that enhance food safety and health for all consumers.

▼ MICROBIOLOGY PLATFORM MISSION

NCFST's Food Microbiology Platform generates knowledge about the behavior of microorganisms in food and processing environments to improve food safety, quality and public health. When working with NCFST, stakeholders receive and have access to a variety of benefits, including:

> BREAKTHROUGH SCIENCE

> INNOVATIVE TECHNOLOGY

> CUTTING-EDGE NUTRITION

- >> Expert knowledge on *Clostridium botulinum* and other bacterial sporeformers
- >> Expert knowledge on bacterial and viral pathogens
- >> Risk management options for fresh produce
- >> New molecular tools for studying microbial resistance
- >> Proven sample preparation and detection techniques
- >> State-of-the-art detection and decontamination methods for food defense, especially biological threat agents