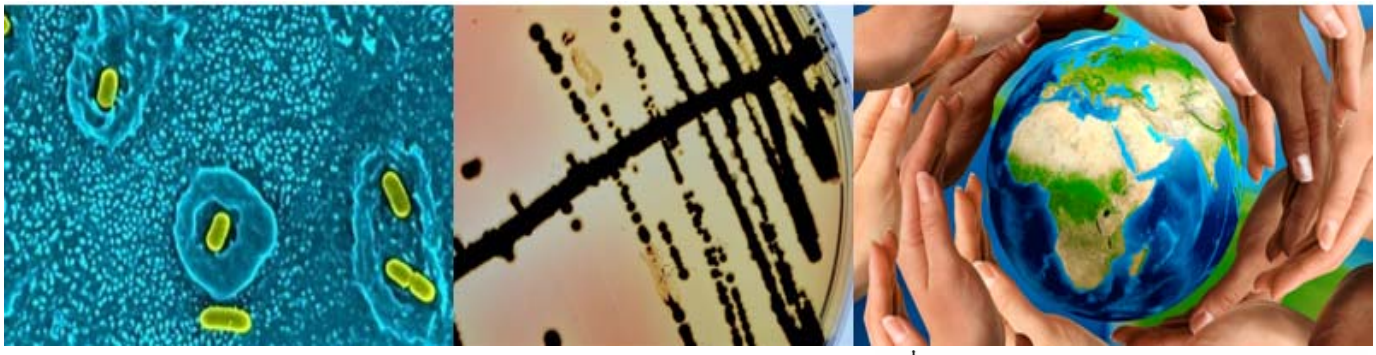

PUBLIC HEALTH MICROBIOLOGY LABORATORY

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With the tremendous ability of a plethora of microorganisms to move towards diversity and "*fitness*" through vertical and horizontal gene transfer mechanisms, assuring public health safety against natural and anthropogenic microbial pathogens from food, water, and the environment is a daunting task and a moving target. Enhanced global travel and commerce, increased proportions of infectious diseases in "*at-risk*" populations, and consumers' demand for nontraditional commodities such as minimally processed and ready-to-eat products provide breeding grounds for emerging, novel, and reemerging infectious diseases. Foodborne diseases cost an estimated 420,000 lives every year around the globe and are collectively responsible for the loss of over 33 million years of healthy living annually. Every year, 1 out of 6 Americans experiences illnesses from these pathogens, leading to about 128,000 hospitalizations and over 3,000 deaths.

The main foci of Dr. Fouladkhah's laboratory endeavors are for better understanding ecology, epidemiology, pathogenesis, and control measures against environmental and enteric pathogens and spoilage organisms, especially those that are non-vaccine preventable in nature. Randomized and observational experiments and microbiological challenge testing under the context of predictive microbiology are intended to be truly translational in nature with immediate applications for the public, regulatory agencies, and research and extension stakeholders of the academe. Hurdle validation studies against human, food, water, and environmental isolates of *Salmonella* serovars, Shiga toxin-producing *Escherichia coli* serogroups, and *Listeria monocytogenes* serotypes at various planktonic and biofilm vegetative stages, various antibiotic susceptibility phenotypes and at different biotic and abiotic adhesive surfaces are currently the main concentrations of the laboratory. Culture dependent and independent approaches are also utilized in validation studies for extension stakeholders of the university. The validation of high pressure processes for pathogens survival and inactivation kinetics, validating processes against antibiotic resistant and susceptible phenotypes, surface and sub-surface water testing for FSMA compliance, and process control and hurdle validations for microbial risk assessment and prevention-based management systems are additional capabilities of the laboratory.

"*With dedicated collaborators, and Cooperative Extension supporters from our college, it is unequivocal for me that, together with remaining career-oriented public health, food safety, and infectious diseases colleagues in the country, and around the world, we will be able to leave a positive footprint behind and ultimately save as many precious lives as possible by reducing the current burden of infectious disease-related premature deaths.*"

Photos courtesy: http://news.yale.edu/ & http://yalemedicine.yale.edu/.