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LOCKWOOD LECTURE

“Nanotechnology to the Rescue: A chemical free, antimicrobial platform using Engineered Water Nanostructures”



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Tea: 10:30 a.m., Lecture: 11:00 a.m.

**Jones Auditorium, The Connecticut Agricultural Experiment Station
123 Huntington Street, New Haven, CT**

Despite advances in public health, infectious diseases continue to affect millions of people. The toll of infectious disease is further complicated through the evolution of antibiotic-resistant bacteria, while the constant antigenic shift of influenza viruses compromises vaccine development. Similarly, microbial contamination is a leading cause of foodborne illnesses and food waste in the US, with the annual cost exceeding \$15 billion. Control of these infections remains a challenge and currently relies on interventions that have significant shortcomings. Innovative, effective, low cost and sustainable technologies are urgently needed in the battle against infections. A novel nanotechnology-based, chemical free, antimicrobial platform was developed that relies on the synthesis of Engineered Water Nanostructures (EWNS) using electrospray and ionization of water. These nano-structures possess unique physicochemical and biological properties and inactivate pathogens through cell membrane destruction. Applications across the Farm-to-Fork chain for enhanced food safety and quality assurance will be presented. Funding for the development and characterization of EWNS platform was provided by the US National Institutes of Health (NIH) and US Department of Agriculture (USDA).

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