

USAMRIID reports that heat stabilization inactivates viral and bacterial pathogens as well as preserving tissue biomarkers

UPPSALA, Sweden, June 2, 2015. Denator AB announced today that in a new publication in the journal BMC Microbiology, scientists at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) have showed that the company's proprietary heat stabilization technology can be used to inactivate both viral and bacterial pathogens as well as preserving sensitive biological molecules such as biomarkers.

The ability to perform reliable biomarker research on infectious diseases can accelerate the process of developing vaccines, anti-viral drugs and treatment schemes. Due to the contagious nature of many pathogens of interest, research is conducted in enclosed laboratory facilities with a biosafety-level of 3 or 4 (so called BSL-3 and -4). As most of the proteomic equipment which allows for biomarker detection is localized outside of these enclosed lab facilities, **infectious tissue samples face the challenge of complete pathogen inactivation** before downstream proteomic analysis can be safely performed. Denator's **heat stabilization technology utilizes conductive heating, under controlled pressure, to rapidly eliminate enzymatic activity in biological samples.** Although many studies have reported on the ability of heat stabilization to stop biological changes immediately and permanently, this is **the first time pathogen inactivation has been demonstrated** using the system.

In the recent publication "*Heat fixation inactivates viral and bacterial pathogens and is compatible with downstream MALDI mass spectrometry tissue imaging*"¹, Denator's Stabilizor™ system was used for inactivation of bacterial and viral pathogens combined with complete compatibility of proteomic analysis using Matrix Assisted Laser Desorption Ionization mass spectrometry imaging (MALDI-MSI). In this study, mice were infected with viral and/or bacterial pathogens representing two strains of Venezuelan Equine Encephalitis virus (VEEV) and two strains of *Burkholderia* bacteria. Additionally, a tissue mimetic model was employed using *Escherichia*, *Klebsiella* and *Acinetobacter* isolates. **Tissue samples were heat-stabilized for 30 seconds which resulted in complete inactivation of all of the above-mentioned viral and bacterial pathogens.**

Dr Lisa Cazares, research scientist at USAMRIID, says: "We are very pleased with the initial results obtained with the heat stabilization technology. We are constantly facing challenges when working with highly pathogenic agents and especially when downstream analysis requires removal of samples from containment such as protein biomarker discovery studies or drug efficacy analysis. Heat stabilization is unquestionably a promising tool for future use in BSL-3 and -4 labs to enable proteomic analyses of infectious tissue samples".

¹ Lisa H Cazares et al. BMC Microbiology 2015, 15:101.
<http://www.biomedcentral.com/1471-2180/15/101#sec5>

Karsten Fjärstedt, CEO at Denator, stated: "We strongly believe that the Stabilizor system represents a true breakthrough in improving sample preservation, and subsequent analysis, of biological samples. We have now taken the next exciting step into research of infectious diseases, and we believe that the combined effect of providing safety while maintaining sample integrity will have an exceptional impact on how to work with infectious samples in the future. That such a prominent actor such as USAMRIID is leading the development of this application area is highly ensuring for our future success."

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Notes to editors**Enquiries:**

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Denator AB is a Swedish-based biotech company with a mission to enhance sample quality of biological samples and improve sample handling and preparation in life science and clinical research markets. The company's proprietary heat stabilization technology is an additive-free preservation technology for biological samples which stops degradation and changes immediately and permanently. This ensures a stable sample from the moment of excision until the point of analysis which increases the accuracy and quality of analytical results. For research use only. Not for use in diagnostic procedures.

About U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)

USAMRIID's mission is to provide leading-edge medical capabilities to deter and defend against current and emerging biological threat agents. Research conducted at USAMRIID leads to medical solutions—vaccines, drugs, diagnostics, and information—that benefit both military personnel and civilians. The Institute plays a key role as the lead military medical research laboratory for the Defense Threat Reduction Agency's Joint Science and Technology Office for Chemical and Biological Defense. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command. For more information, visit www.usamriid.army.mil

No commercial endorsement is implied.

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