TECHNOLOGY COMMERCIALIZATION

TEXAS A&M ENGINEERING EXPERIMENT STATION

Hemorrhage Intensive Severity and Survivability Score (HISS) for Hemorrhaging Trauma Fusing Five Physiologic Biomarkers

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Research Interests

- Bioelectronics and Organic Electronics
- Biochips and Biofuel Cells
- Nano and Microfabrication and BioMEMS
- Science, Technology, Innovation & Public Policy
- biochips.org

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Overview

Trauma is the leading cause of death in the United States among persons ages 1-46, and hemorrhage is the primary complication of trauma. New approaches to reduce patient mortality are aggressively being sought. One such approach is the use of a minimally invasive multi-biomarker biosensor system (PSM Biochip) and the fusion of such multi-biomarker data into a companion survivability designation score.

Technology

A Hemorrhage Intensive Severity and Survivability (HISS) Score is introduced. It is based on the fusion of five biomarkers: glucose, lactate, pH, potassium, and oxygen tension. The HISS Score is a result of the predictions made by the data-driven model in conjunction with an adjunct device in the form of a multianalyte biosensor intended for point-of-care continual monitoring of trauma patients. This would inform a trauma victim's healthcare providers of the criticality of the patient's health and guide them in the delivery of timely and appropriate care and attention, as required. This would aid in decision-making particularly in a scenario involving mass casualties.

Advantages

- High accuracy
- Actionable decision support
- Trend analysis

Applications

- Hemorrhagic trauma patient care
- Trauma center to ICU

Stage of Development

The score was tested using four different classifier algorithms, one hundred (100) instances of Sensible Fictitious Rationalized Patient (SFRP) data synthetically generated and five trauma clinicians.

Patent Status

Pending

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