

Noninvasive Modulation of Mitochondria for the Treatment of Secondary Phase Traumatic Brain Injury

AWARD AMOUNT: \$99,686

THE TEAM

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**Develop a
mitochondrial-
focused therapy to
minimize
brain damage
following TBI**

Recent studies from the Sanderson and Hüttemann labs have uncovered a novel non-invasive method to control mitochondrial activity with infrared light. This technology will be utilized in conditions of cellular injury to non-invasively mitigate mitochondrial dysfunction and minimize brain injury.

The infrared light delivery interface is:

- ✓ Capable of delivering therapeutic light deep into the human brain
- ✓ Non-invasive
- ✓ Easy to deploy at the bedside and/or in the field

THE PROBLEM

Mitochondrial dysfunction has been found to be a significant factor in the progression of secondary brain injury.

A method is needed to control mitochondrial activity in conditions of cellular injury or stress to mitigate mitochondrial dysfunction and ROS generation.

The IRL treatment device will efficiently and safely deliver deeply penetrating infrared light (IRL) of a specific wavelength combination shown to effectively prevent the formation of toxic free radicals in the brain following TBI.



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INFRARED LIGHT
WAVES

THE SOLUTION

THE TECHNOLOGY