

Device for Simulating Explosive Blast and Imaging Biological Specimens

Summary

Researchers at the National Institute of Child Health and Human Development (NICHD) developed a device simulating a blast shock wave of the type produced by explosive devices such as bombs. The invention allows for the real-time study of blast effects on in vitro cell models. NICHD researchers seek licensing opportunities to further develop this device.

NIH Reference Number

E-068-2012

Product Type

- Devices

Keywords

- Explosive Blast, Simulator, Traumatic Brain Injury, TBI, Central Nervous System, CNS, National Institute of Child Health and Human Development, NICHD, Zimmerberg

Collaboration Opportunity

This invention is available for licensing and co-development.

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Description of Technology

Traumatic brain injury (TBI) is a major health problem. Between 3.2 and 5.3 million people live with long-term disabilities resulting from TBI, and thus, contribute to the need to develop therapies that treat TBI-induced cellular damage. Researchers at the National Institute of Child Health and Human Development (NICHD) have developed a device that simulates the pressure waves resulting from explosions. This invention can be used to study the in vitro effects of shock waves on cells in culture and could be used to determine the effects of potential treatments for TBI in an in vitro cellular model. The device consists of a source of compressed gas connected to a chamber containing cells. Cells can be derived from central nervous system (CNS) tissue, muscle, etc. The effects of the release of the compressed gas (blast) on the cells can be monitored in real time in a

microscope or other imaging device.

Potential Commercial Applications

- Investigate the cellular effects of pressure waves in an in vitro model
- Use to screen for potential agents to treat traumatic brain injury (TBI)

Competitive Advantages

- Allows for the real-time study of a blast effect on in vitro cellular models
- Allows for testing of potential therapies of traumatic brain injury in an in vitro model.

Inventor(s)

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Development Stage

- Prototype

Patent Status

- **U.S. Patent Filed:** U.S. Patent Application Number , Filed 23 Jan 2013

Therapeutic Area

- Central Nervous System

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