Mesenchymal Stem Cell-Derived Exosomes as a Neuroprotective and Neurorestorative Treatment Strategy for Traumatic Brain Injury

**THE TEAM**

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**THE PROBLEM**

Despite recent improvements in supporting and rehabilitative care for TBI, no pharmacological agents exist that are able to:

- Reduce TBI-associated mortality
- Improve neurologic outcomes following injury

**THE SOLUTION**

Successful transition of exosomes into clinical use as an early treatment for TBI

Depending on the timing of administration, mesenchymal stem cell (MSC)-derived exosomes may play a substantial and multifaceted role in providing neuroprotection and/or neuro-restoration:

- High efficacy
- Safe + easy to administer
- Use in military and austere settings
- Reduction in associated multi-organ injuries
- Low-cost
- Potential for large scale production

**THE TECHNOLOGY**

The data generated from large animal model studies will advance MSC-derived exosome development and testing as an early TBI treatment.

- Test earlier administration strategies
- Assess the therapeutic effects of early administration
- Identify exosomes’ protective mechanisms of action in the brain