



Morgane Golan

Ph.D. Candidate, Regenerative Medicine
Third Year ARCS Scholar
Cooper/Mukharji Award

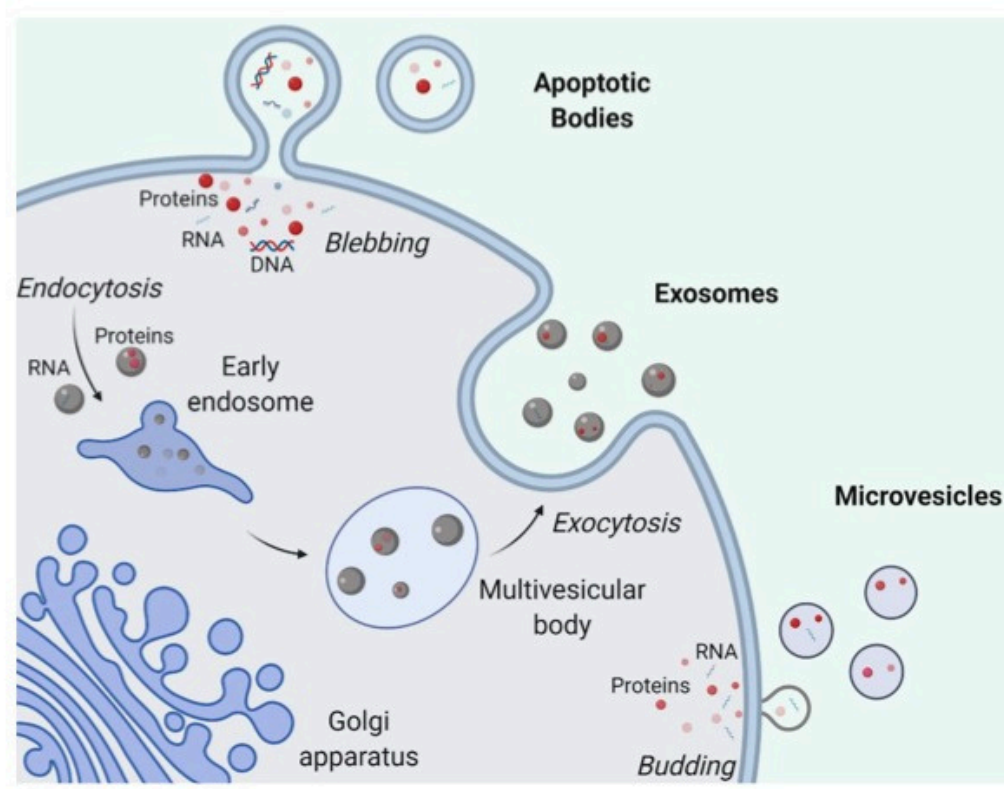


UNIVERSITY OF
GEORGIA

Enhancing neural extracellular vesicle therapies

My research aims to improve the therapeutic efficacy and accessibility of neural extracellular vesicles for the treatment of neurological diseases and disorders.

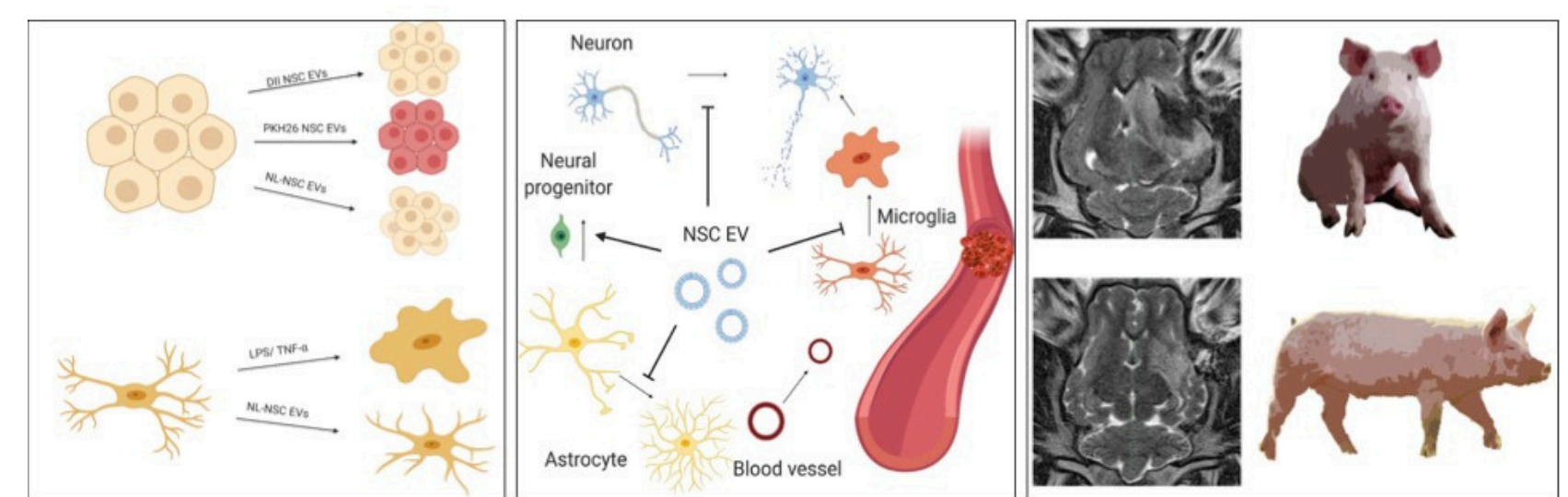
Extracellular Vesicles (EVs)



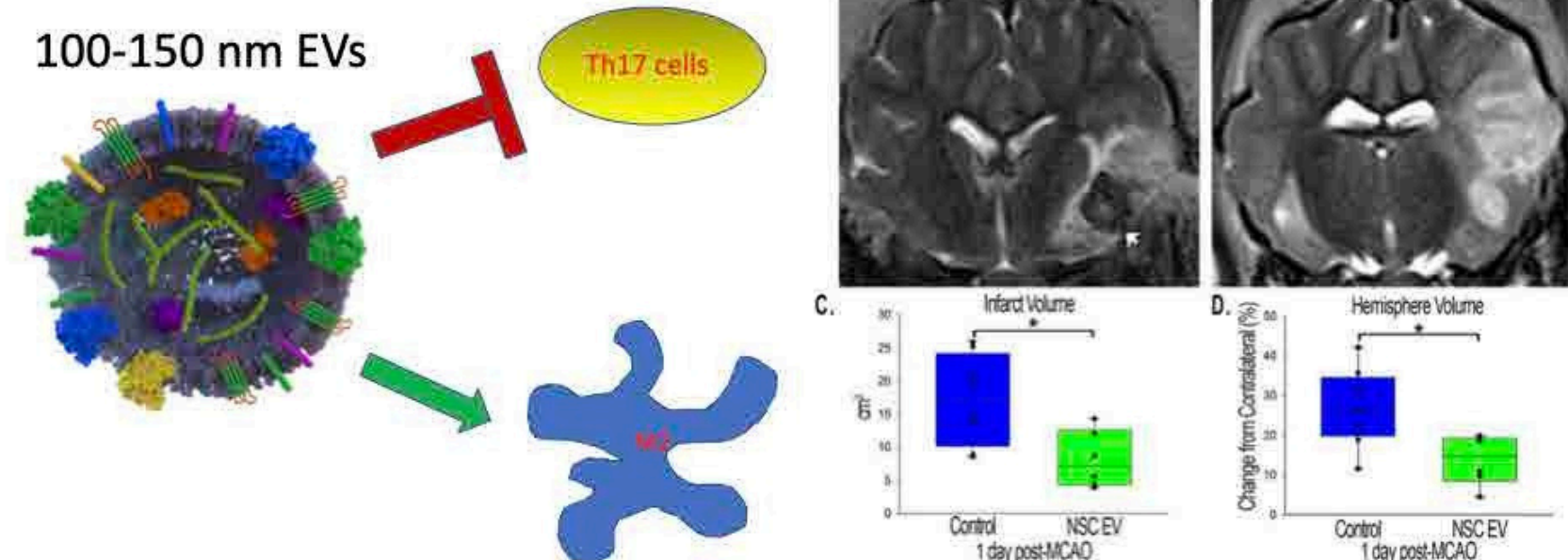
- Major Subtypes**
- Microvesicles
 - Apoptotic bodies
 - Exosomes
- Size**
- 30 – 1,000nm
- Cargos**
- mRNA
 - microRNA
 - Proteins
- Purpose**
- Cell to cell communication!

Neural Stem Cell-Derived (NSC) EVs in Action

NSC EVs attenuate microglia activation *in vitro* NSC EVs attenuate morphological changes *in vivo* after stroke NSC EVs promote enhanced recovery in porcine stroke model

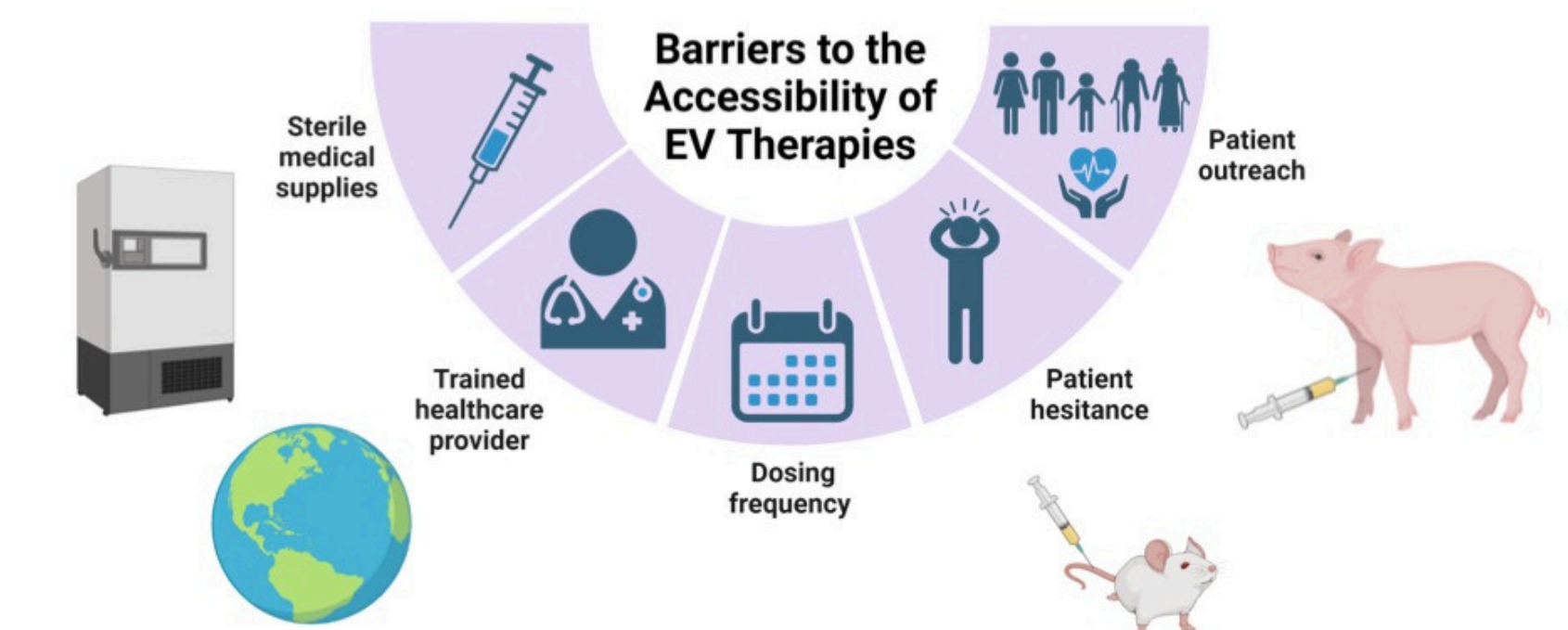


Anti-Inflammatory Mechanisms of NSC EVs



EVs act on macrophages, T Regs, and microglia resulting in M2 polarization

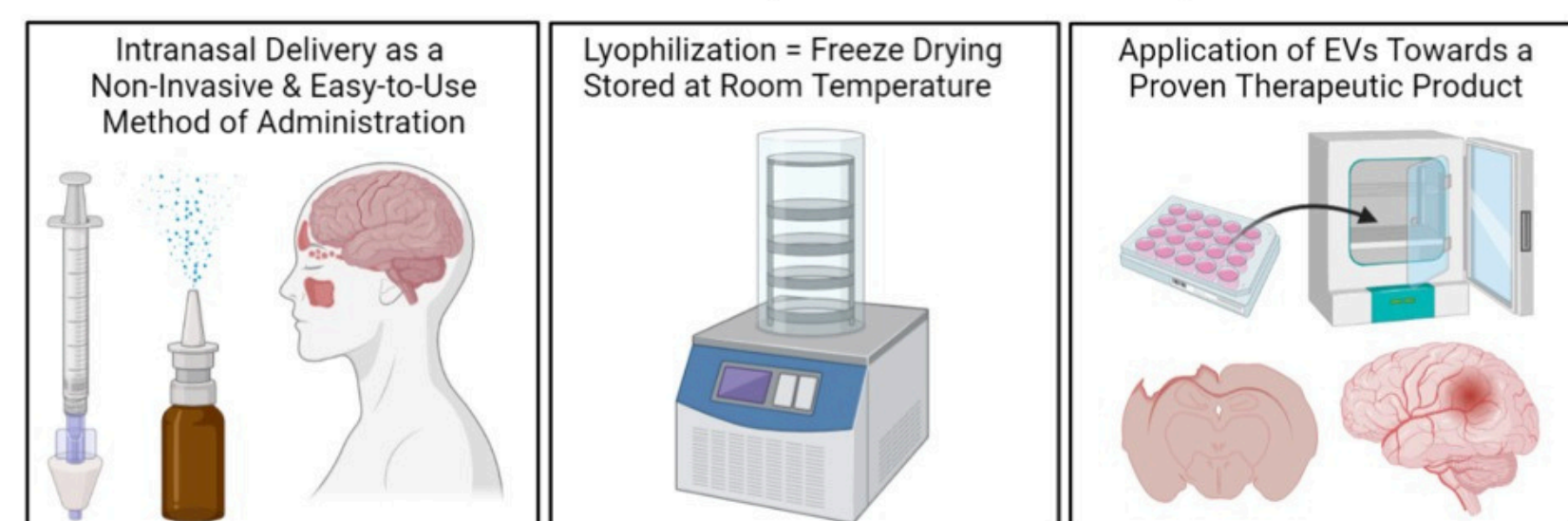
Critical Factors Limiting EV Application



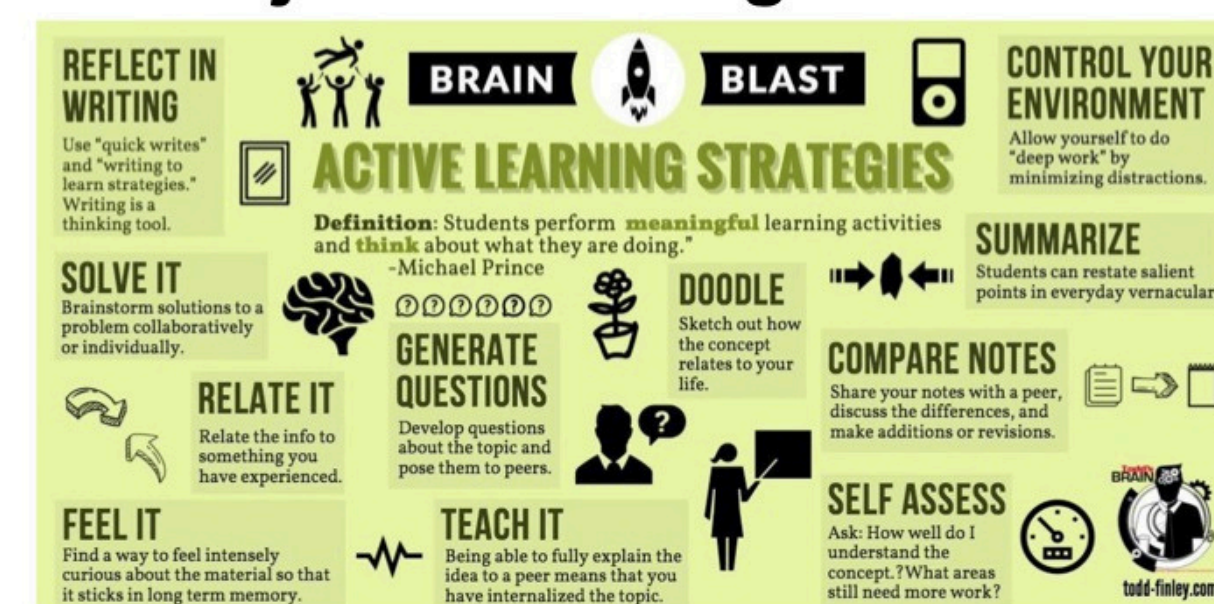
EVs are typically stored at -80 or -20°C and are administered intravenously

My Research in the Stice Lab at UGA

Test alternative patient-focused routes of administration Identify & validate a ready-to-use preservation technique for EVs Evaluate and maintain potency of EVs via *in vitro* assays & animal models



Teaching in the Regenerative Bioscience Major for Undergraduates



Discipline-based education research (DBER): how does active learning impact academic self-efficacy and learning outcome achievement in Animal Biotechnology?

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Scholar Awards Celebration
November 15, 2023



Igniting
Innovation
in Georgia