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Recombinant Human Perlecan Domain-V Laminin-like Globulin Domain 3 (rhPDVLG3):

A Novel Basement Membrane-Derived Matrikine Targeting Neurovascular Injury and Repair

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ASENT 2025: Abstract 47 / Poster: March 13 5:15-7:15pm

Perlecan Domain V – LG3

A First-in-Class Matrikine Therapeutic: Designed by Evolution, Developed by Stream

- 550M year-old protein

- 21 kDa c-terminus of Perlecan Domain V

- Elevated in brain of stroke and TBI patients

- Paracrine signal: 40nm distance

- Pleiotropic and anti-apoptotic: Interacts with all cell types of the NVU (through integrin R's)
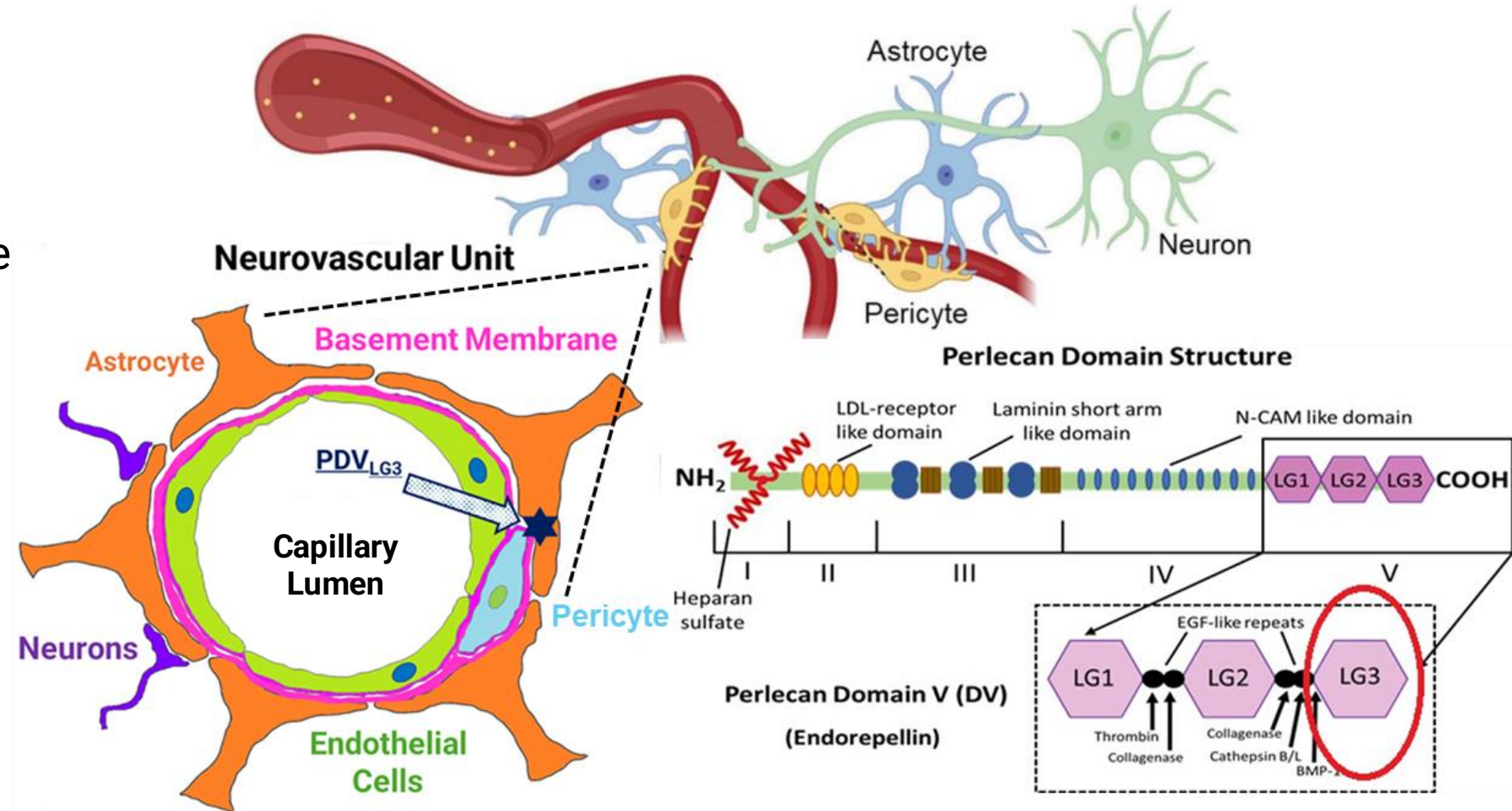
LG3 is Acutely Neuroprotective

Quantification & Imaging of infarct volume following severe stroke (MCAo) in mice.
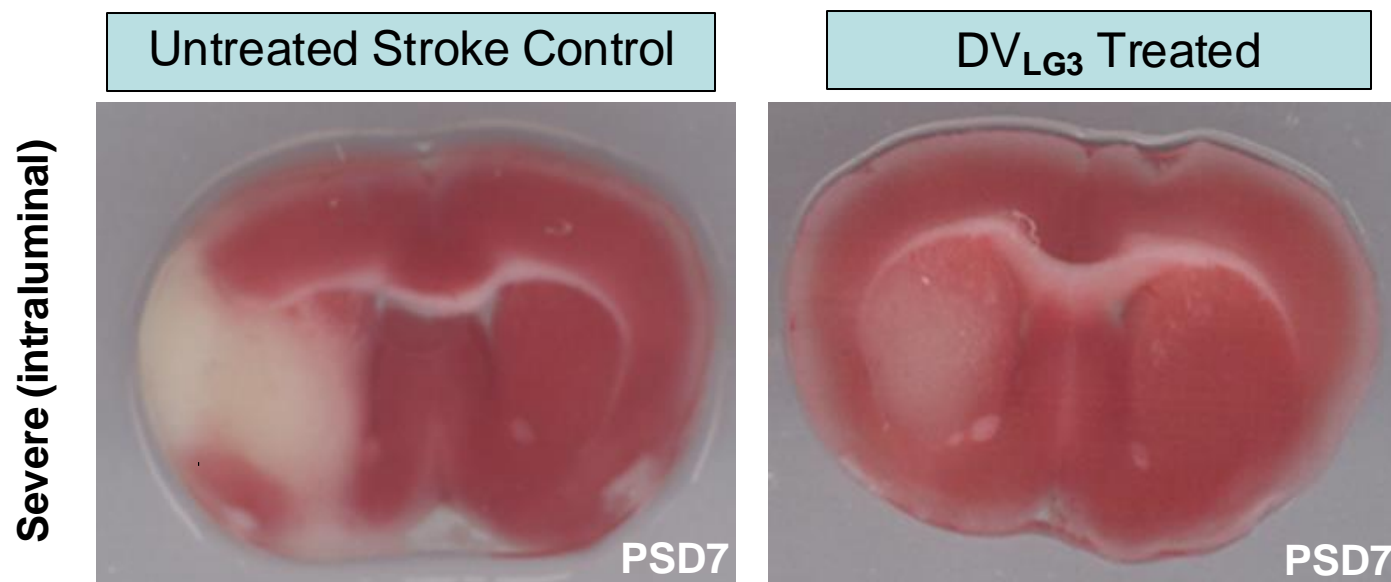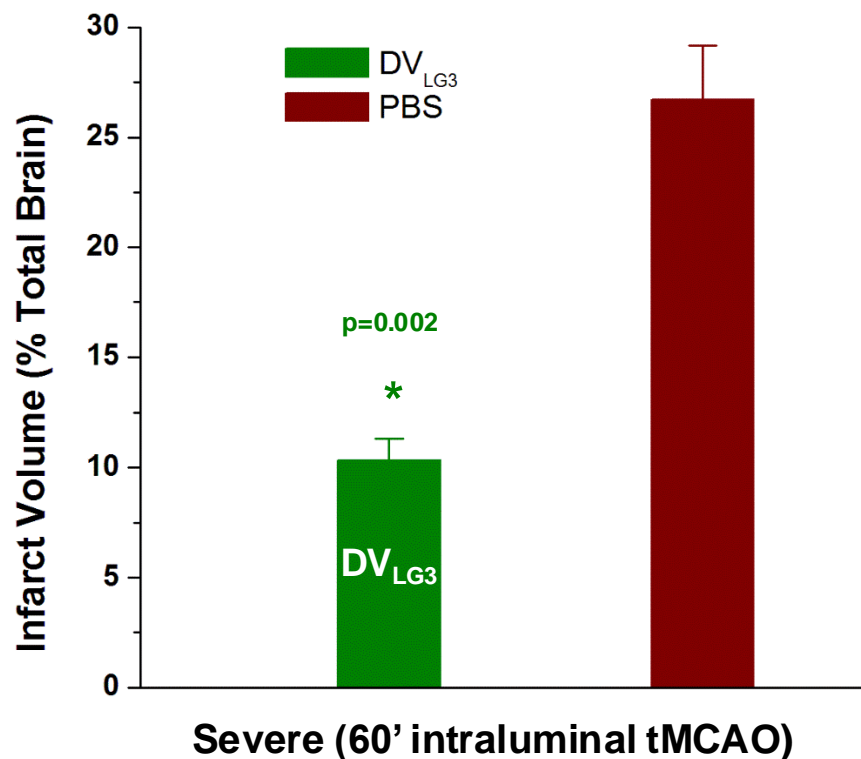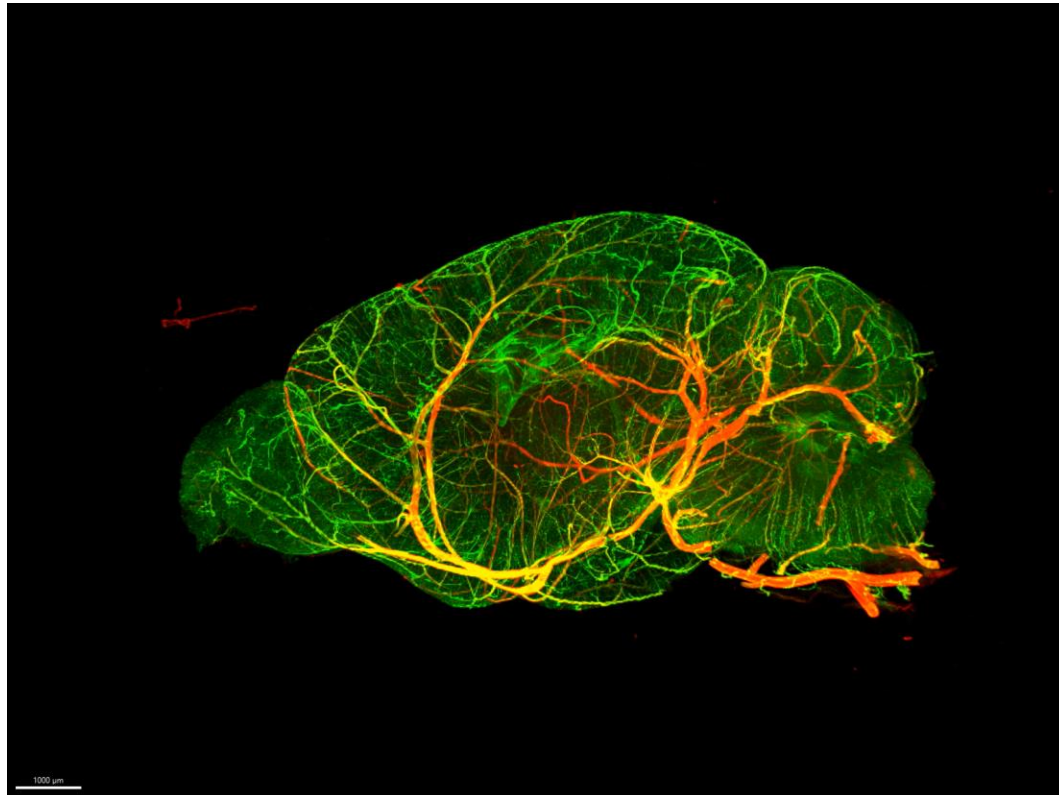
Drug Selection Study: LG3 only shown. 7 days after 60 min transient MCAO filament stroke in mice. Single 6 mg/kg IP dose of LG3 at reperfusion
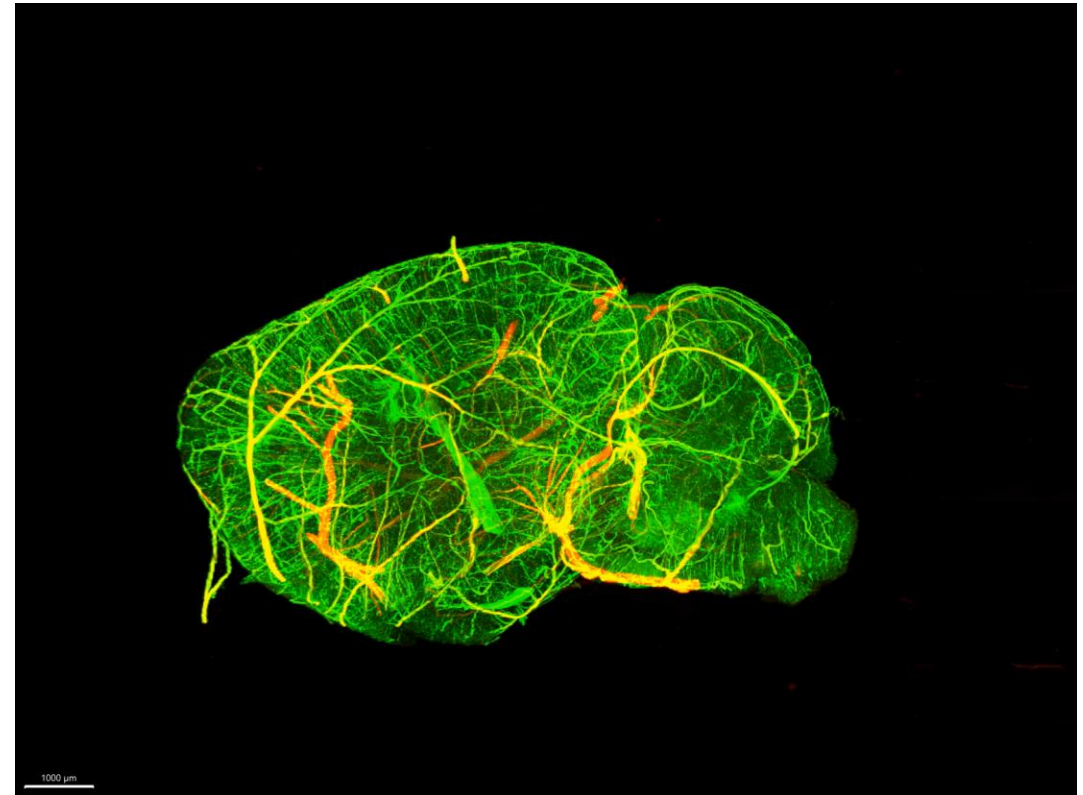
Stroke: Mouse MCAO

*Biose et al 2023, Translational Stroke Research

LG3 Preserves Peri-infarct Vasculature

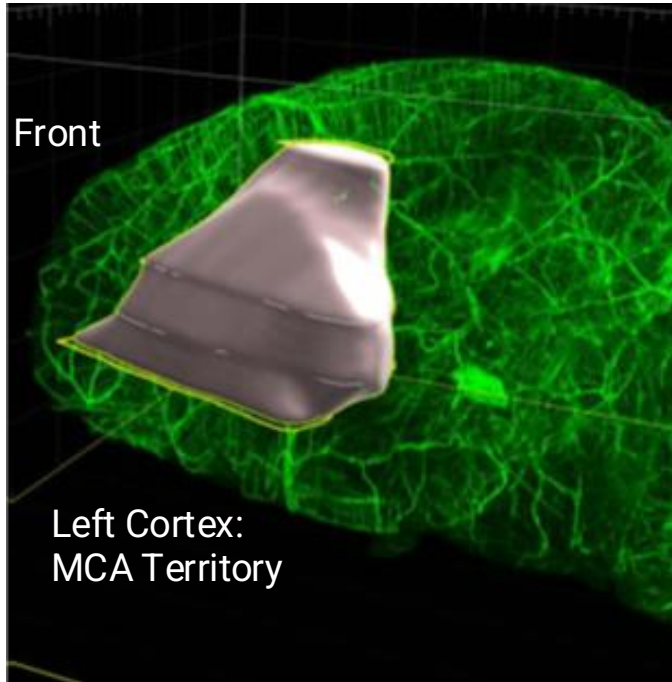**Tissue Clearing + Light Sheet Microscopy 72hr Post CCA-MCA Stroke**
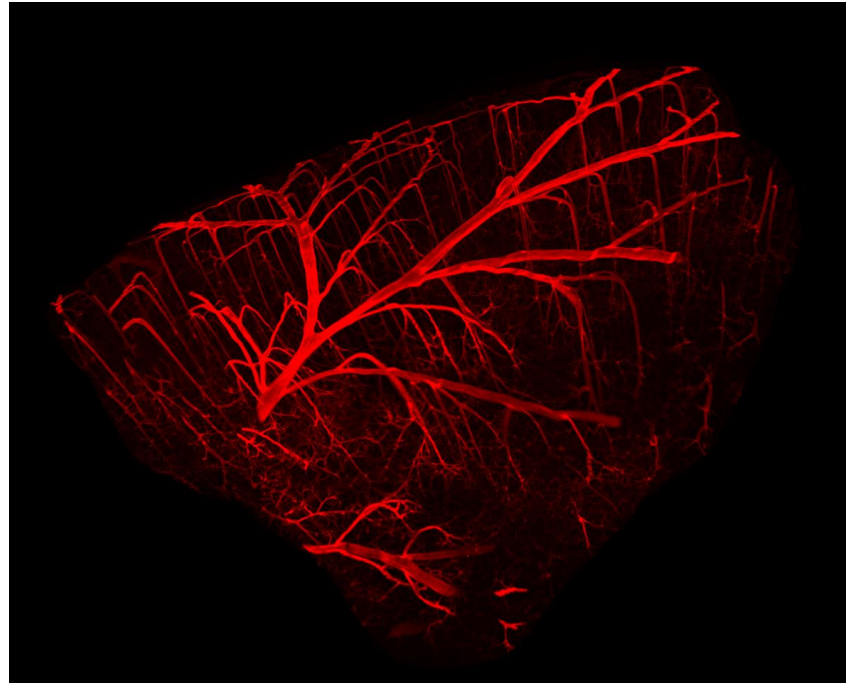
Stroke - PBS

Stroke - LG3

*McCreedy Lab, Texas A&M University 2025

Focus: Penumbral Core 3D Vasculature Tracing

Stroke Region of Interest

Front

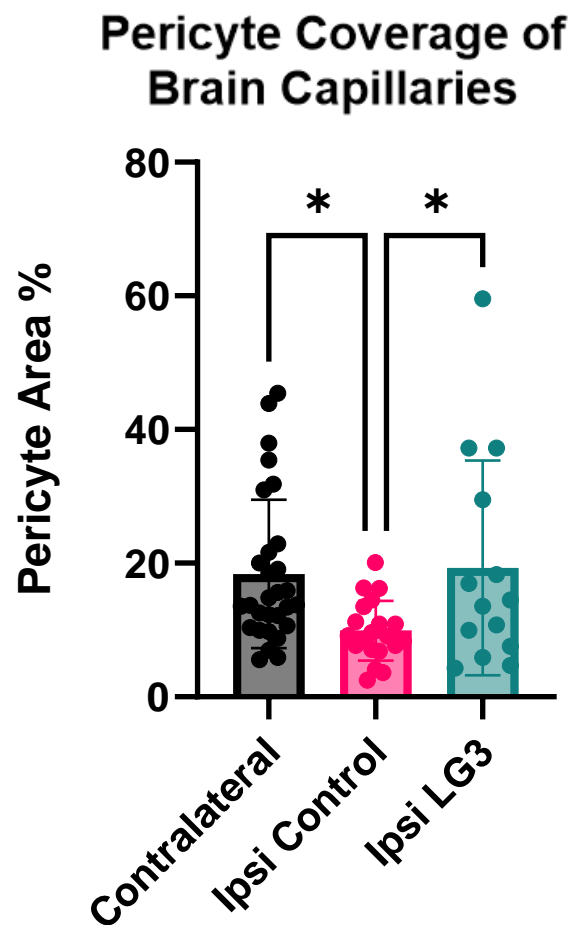Left Cortex:
MCA Territory

Stroke - PBS

Stroke - LG3

*McCreedy Lab, Texas A&M University 2025
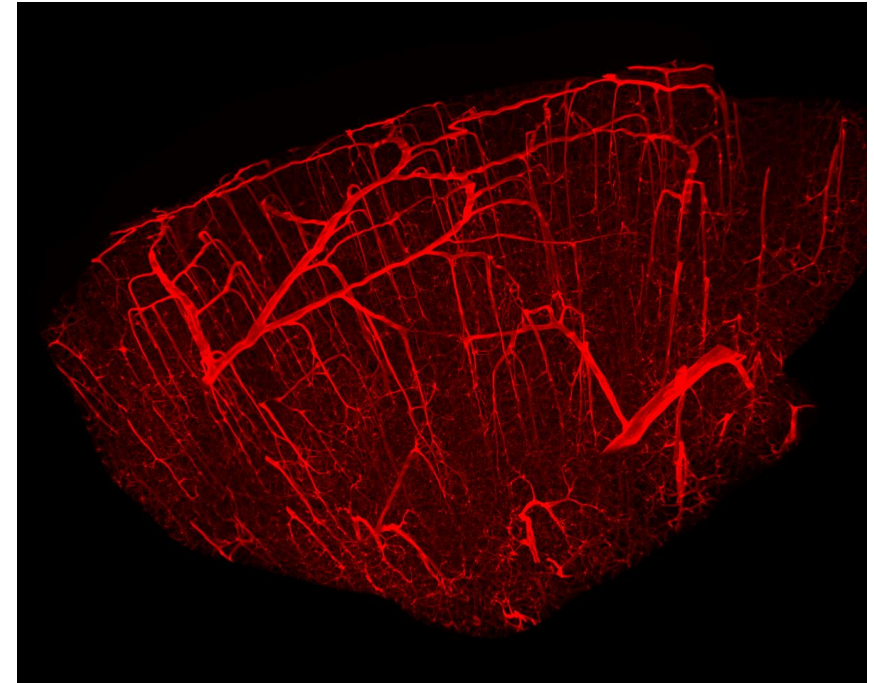
LG3 Improves CNS Pericyte Coverage

Isolated Capillaries + Confocal Microscopy 72hr Post CCA-MCA Stroke

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Pericyte Coverage of Brain Capillaries

Pericyte Area %

Contralateral / Ipsi Control / Ipsi LG3

Control – Contralateral — Merge — 10 µm

Control - Ipsilateral — Merge — 10 µm

LG3 - Ipsilateral — Merge — 10 µm

Labeling: PDGFR-ß   Claudin-5   Lectin

*Hubbard Lab, University of Kentucky 2025
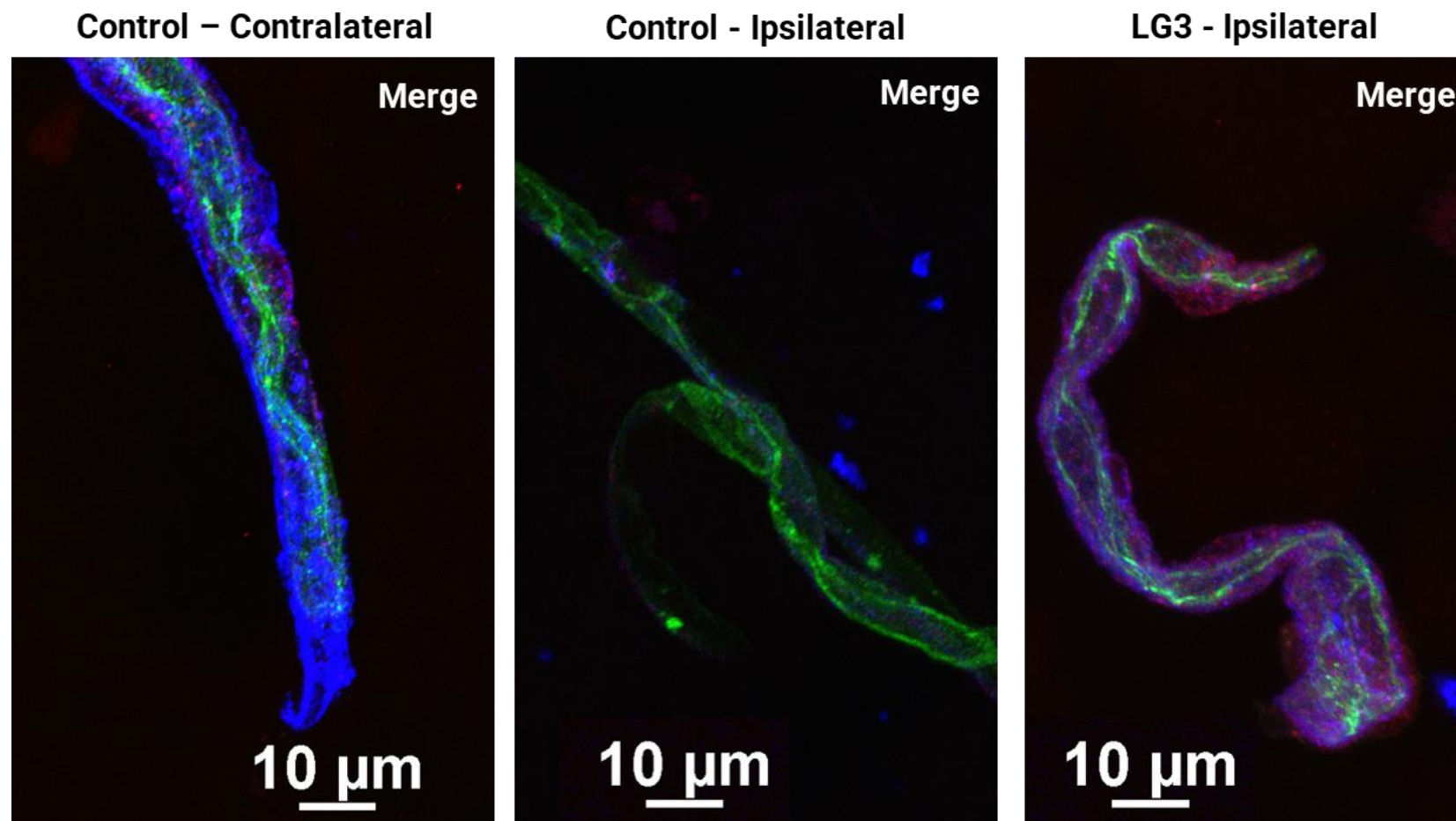
Summary: LG3 – Novel Neurotherapeutic

- Novel, first in class (matrikine) investigational protein
  - *Structurally derived from Perlecan within the extracellular matrix of NVU*
- Endogenously released in response to traumatic or ischemic injury
  - *21kDa matrikine evolutionarily primed for NVU signaling*
- Homes to and persists at sites of neurovascular injury
  - *Drug tracing demonstrates ~48hr parenchymal residence*
- Restores NVU homeostasis: Pleiotropic action → all cell types
  - *Reduces endothelial apoptosis*
  - *Modulates pericyte-microvessel dynamics*
  - *Downregulates glial inflammatory signaling*
  - *Directly neuroprotective and anti-apoptotic*
- Is acutely neuroprotective and functionally restorative
  - *In multiple species and CNS injury models   (Stroke, TBI, Alzheimer's)*
- Clinical trials to be initiated soon
  - *Ultimately across a wide range of acute and chronic neurodegenerative diseases*

Acknowledgements

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Additional Data and Questions- Poster 47 5:15-7:15pm

Contact/Company Info: www.streambiomedical.com