

Engineered Pericyte-Targeted Extracellular Vesicles

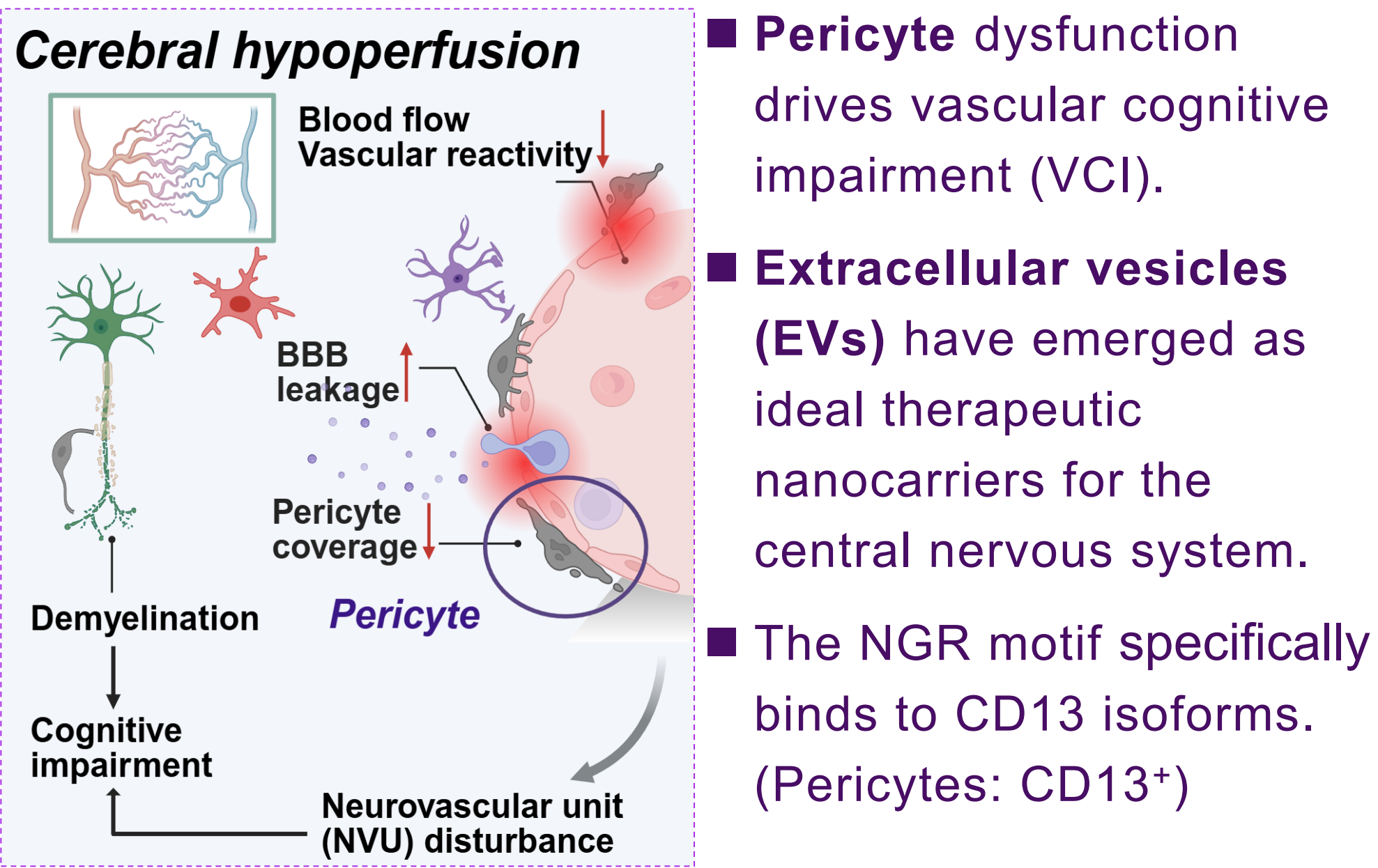
Protect Against Hypoperfusion-Induced Cognitive Impairment and Vascular Demyelination

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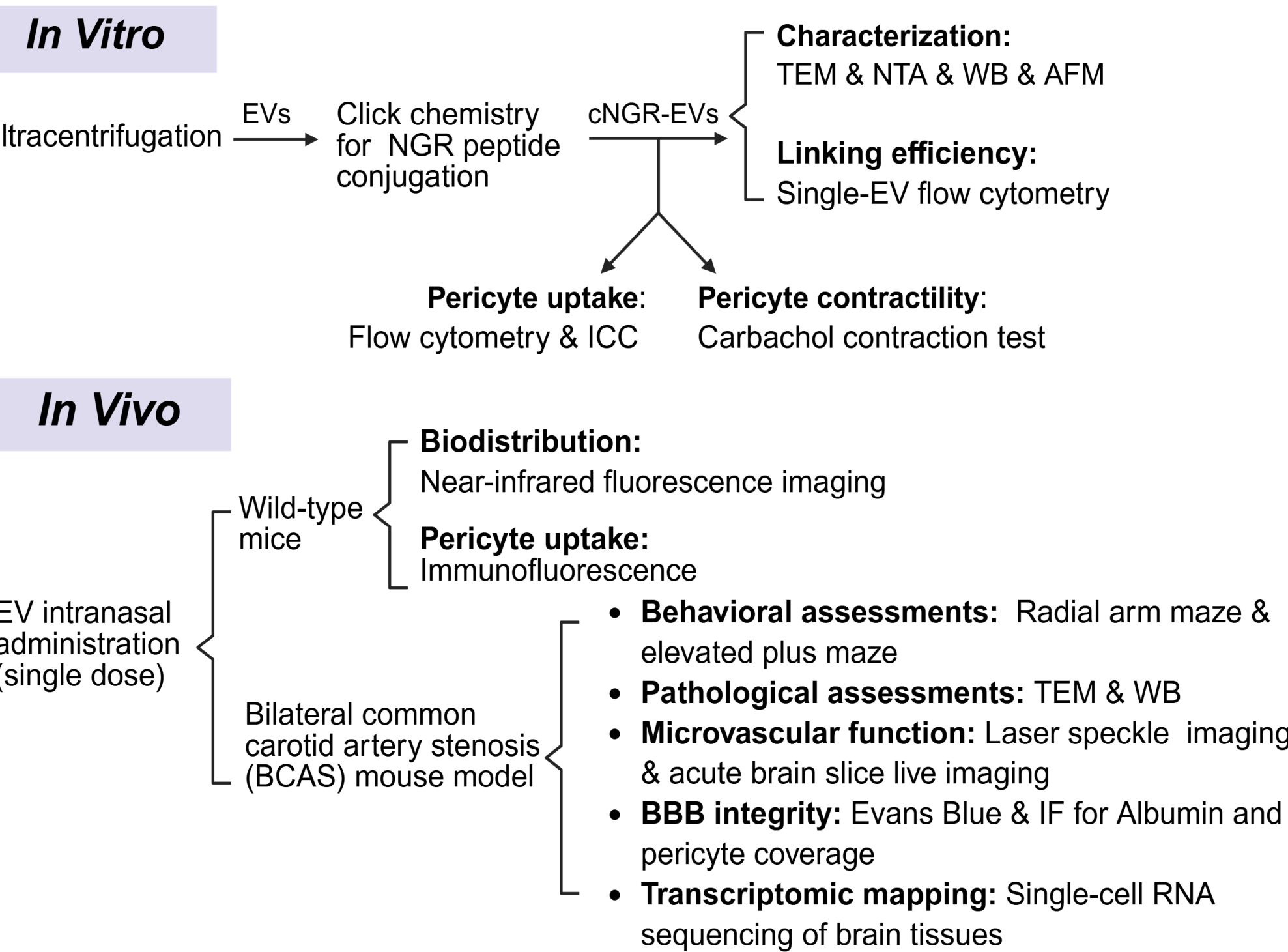
- Intranasal cNGR-EVs provide a novel, pericyte-targeted therapeutic strategy
- The pericyte represents a promising therapeutic target in early vascular cognitive impairment

INTRODUCTION

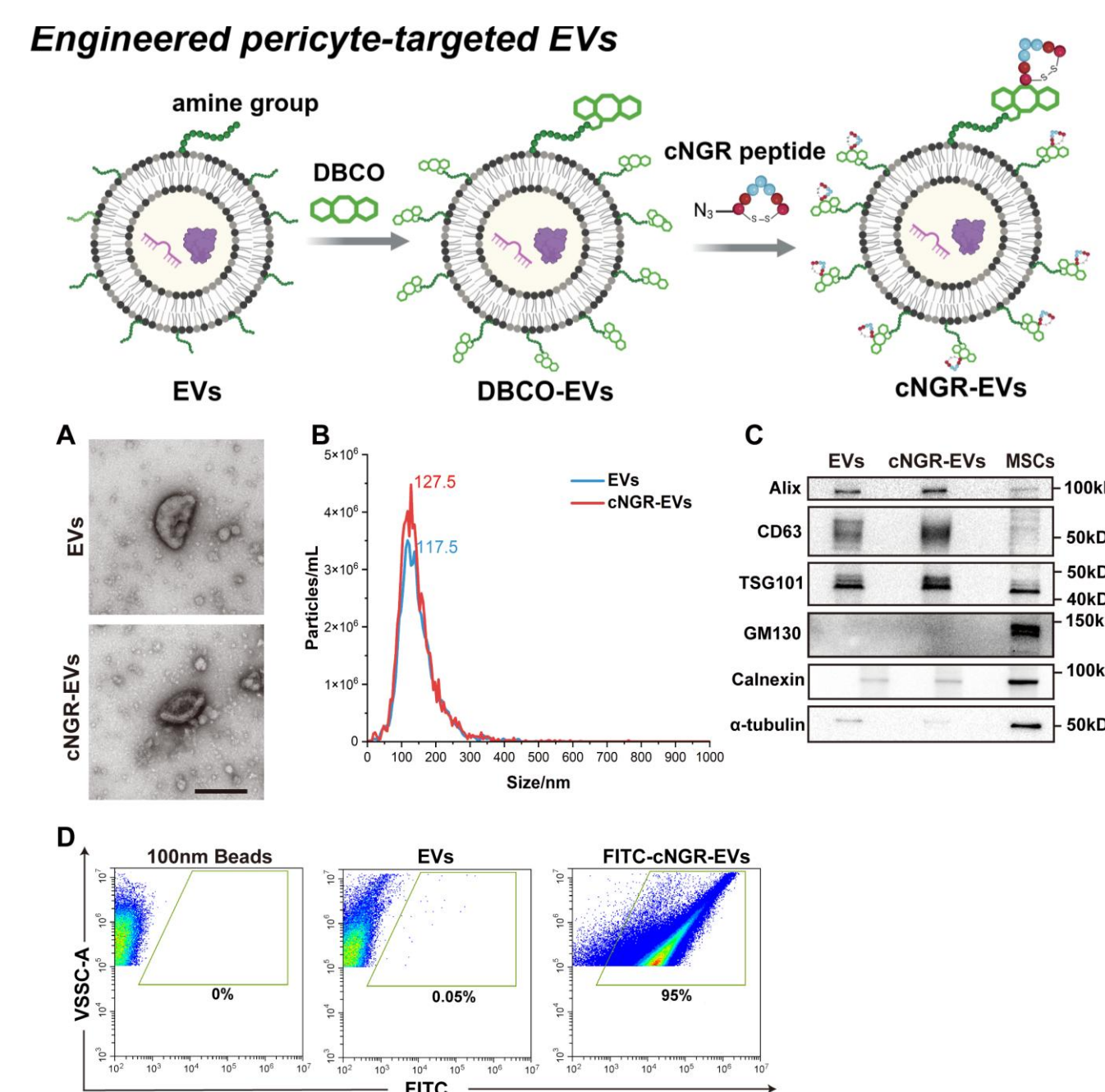


Can pericyte-targeted EVs exert therapeutic effects?

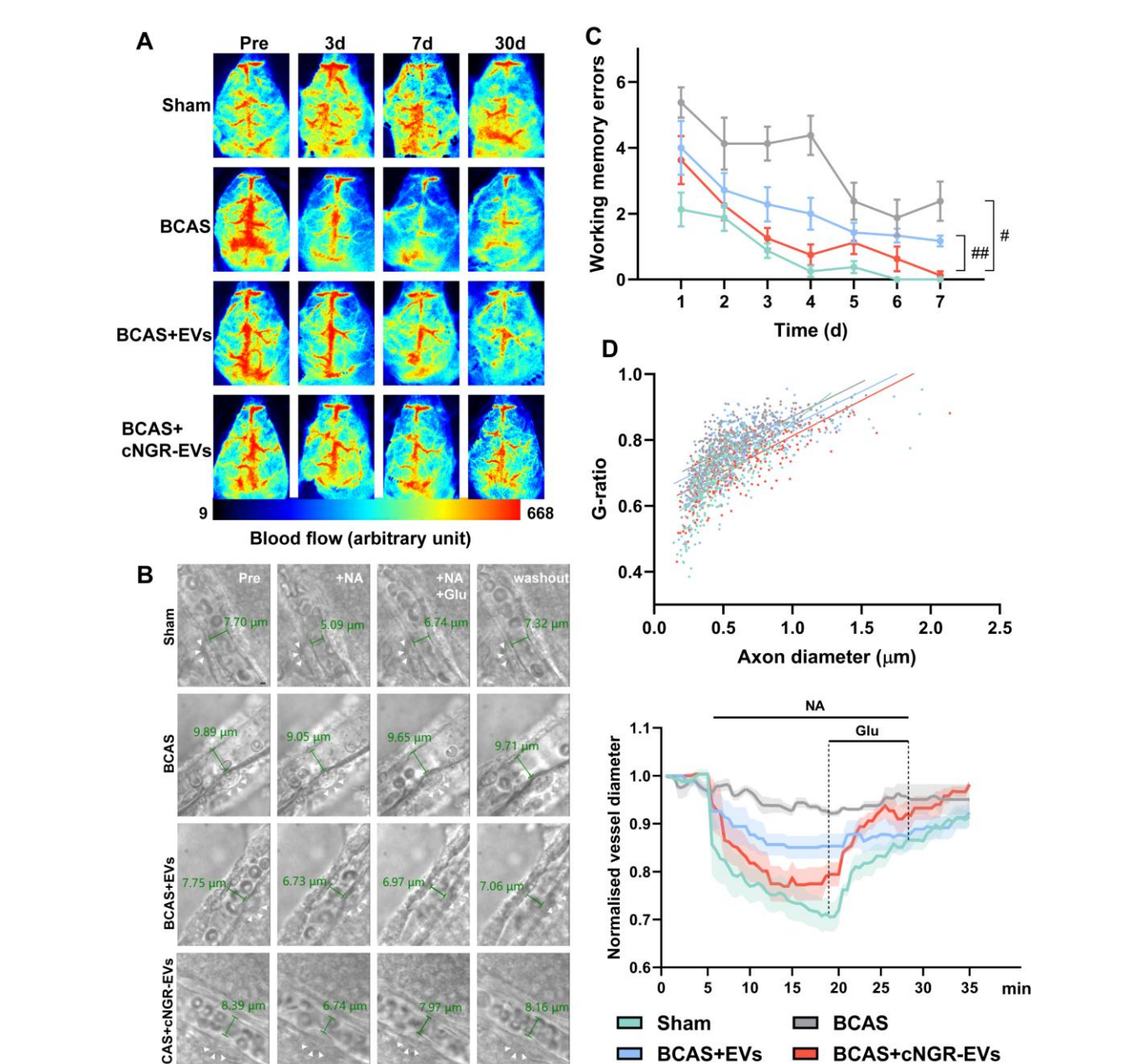
METHODS



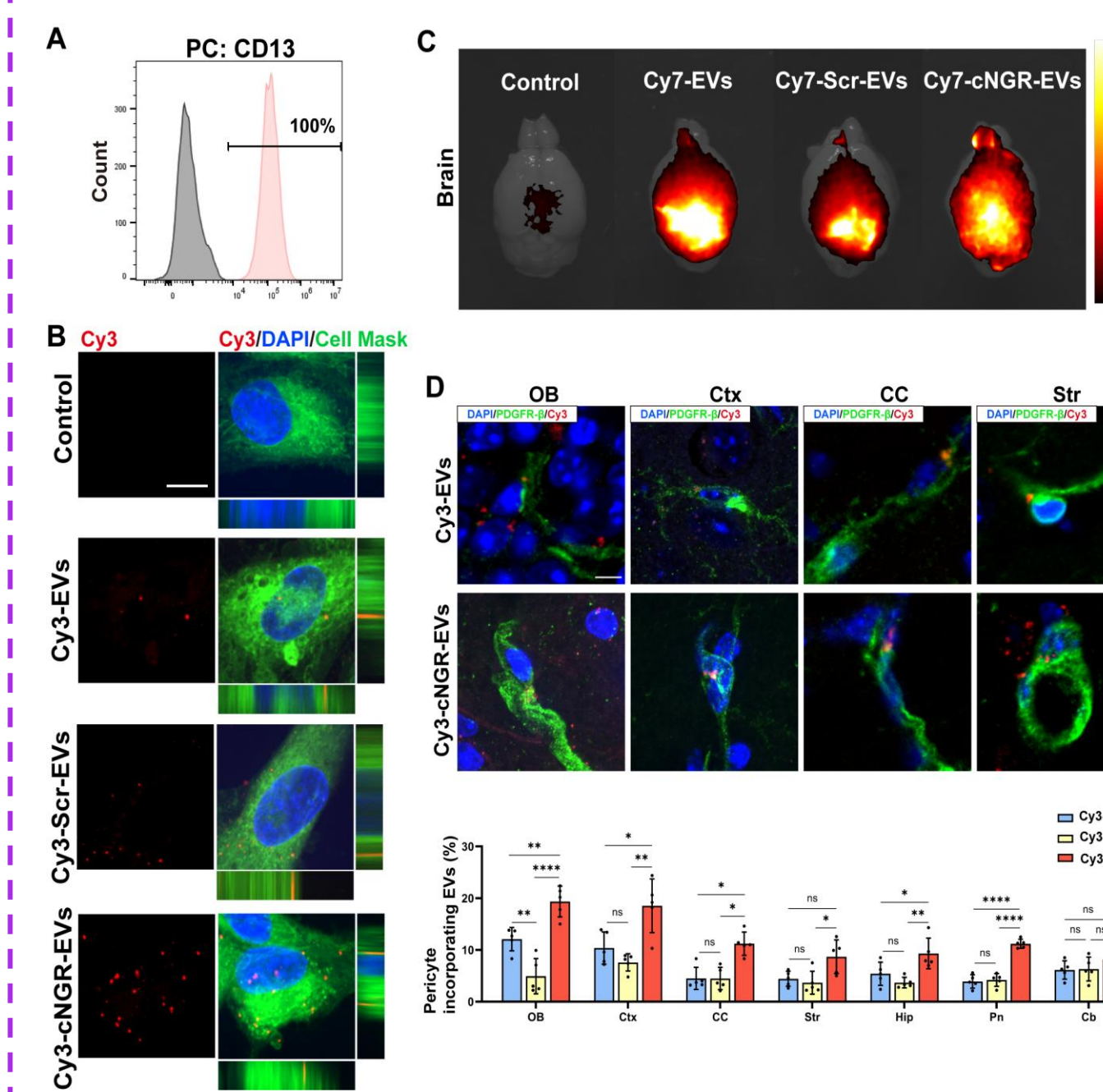
RESULTS



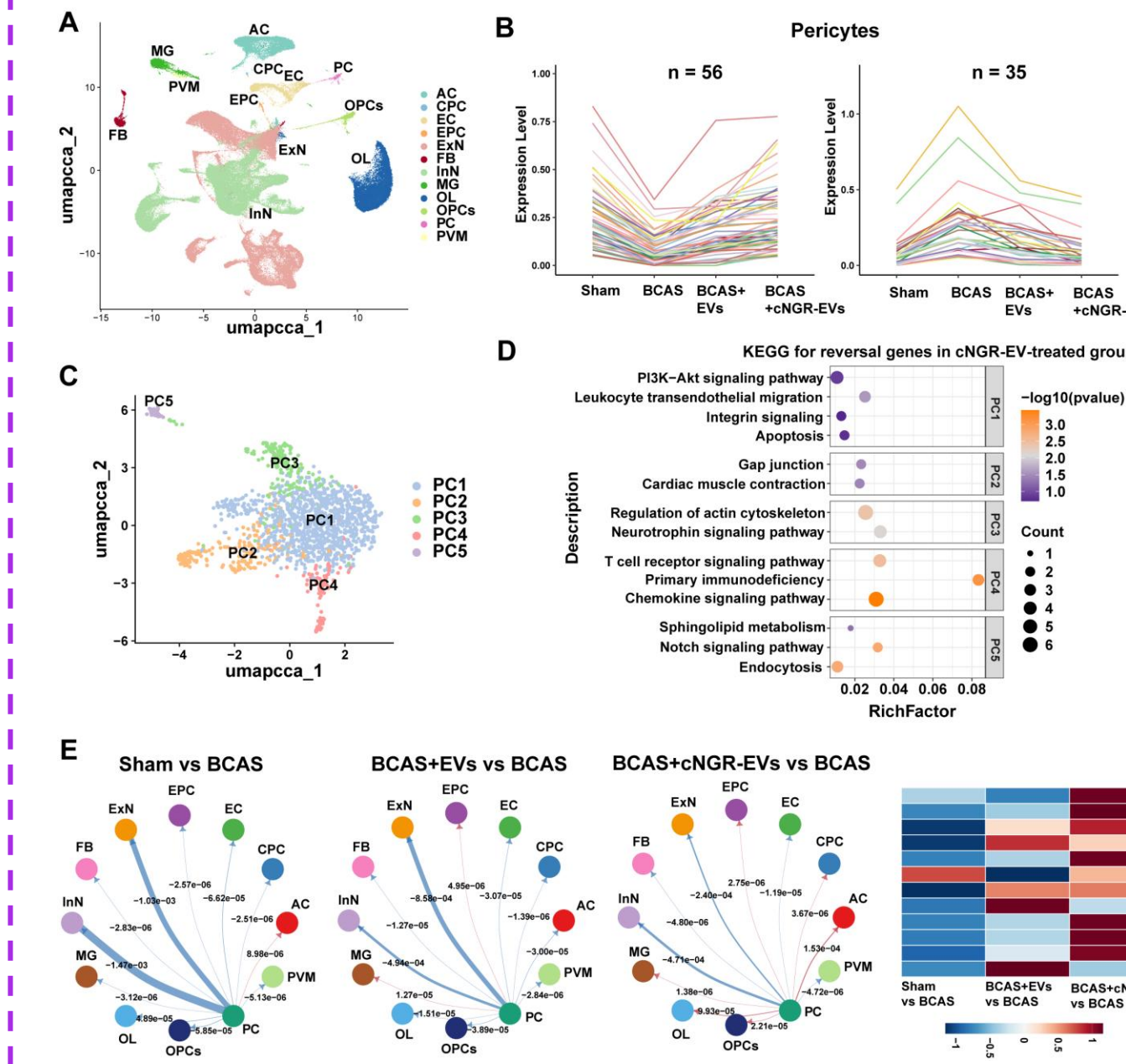
■ **EV Functionalization:** Efficient conjugation process maintains vesicle structure and integrity.



■ **Functional Protection:** cNGR-EVs restore CBF and vascular reactivity, while ameliorating cognitive impairment and demyelination.

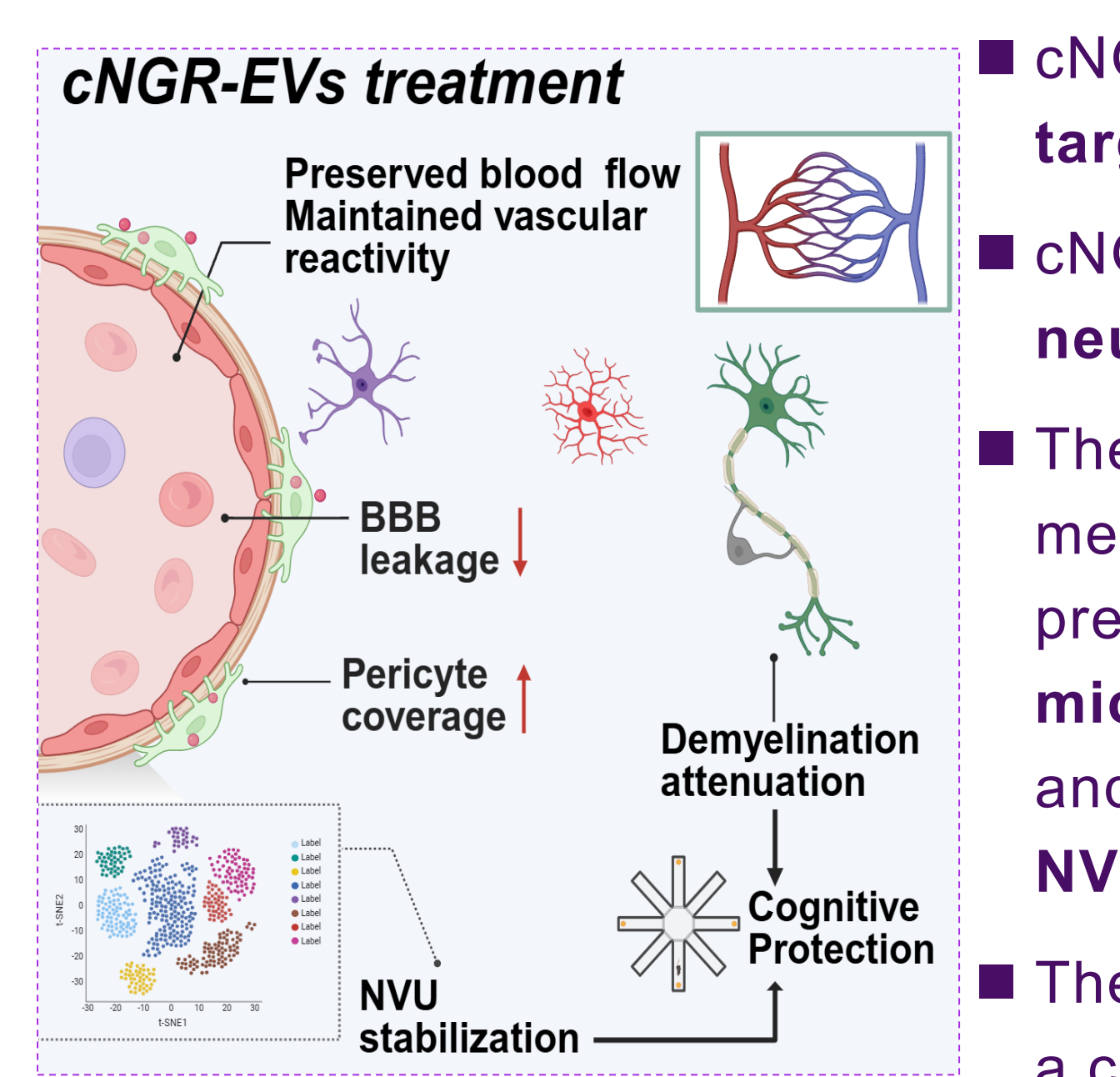


■ **Enhanced Tropism:** cNGR-EVs exhibit significantly increased internalization by pericytes *in vitro* and *in vivo*.



■ **Mechanistic Insights:** cNGR-EVs preserve the pericyte transcriptome and pericyte-mediated cellular interactions within the NVU.

CONCLUSIONS



- cNGR-EVs specifically **target** brain pericytes.
- cNGR-EVs exert robust **neuroprotective** effects.
- These effects are mediated through the preservation of **microvascular function** and stabilization of the **NVU**.
- The pericyte represents a critical **therapeutic target** in VCI.

REFERENCES

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- [2] Pham TC, et al., *J Extracell Vesicles*. 2021.
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- [4] Shen W, et al., *Pharmaceutics*. 2023.

RELATED WORK & CONTACT



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Shen W, et al. J Extracell Vesicles. 2026;15(6). DOI: 10.1002/jev2.70319.