

THERAPEUTIC FOR PERIPHERAL NERVE INJURY

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Value proposition: *A class of small molecule inhibitors of the endothelin B receptor has been shown to significantly enhance peripheral nerve regeneration.*

Technology Description

Current treatments for peripheral nerve injury are limited to symptom relief, physical therapy and surgery, all of which rely on the body's natural nerve regeneration to progress. However, axonal regrowth can take a very long time, and this process is further delayed with aging. Researchers at the Washington University School of Medicine have discovered a novel molecular target that mediates axonal repair following peripheral nerve injury. The target, called endothelin receptor B (ETBR), is expressed by a specialized population of supportive cells residing in the dorsal root ganglia, called satellite glial cells. In murine models, antagonism of ETBR greatly promotes axonal regrowth, even in aging cohorts where the regenerative programming is attenuated. The researchers found that several drugs targeting ETBR, such as Bosentan and Macitentan, may be effectively repurposed to accelerate recovery following peripheral nerve injury.

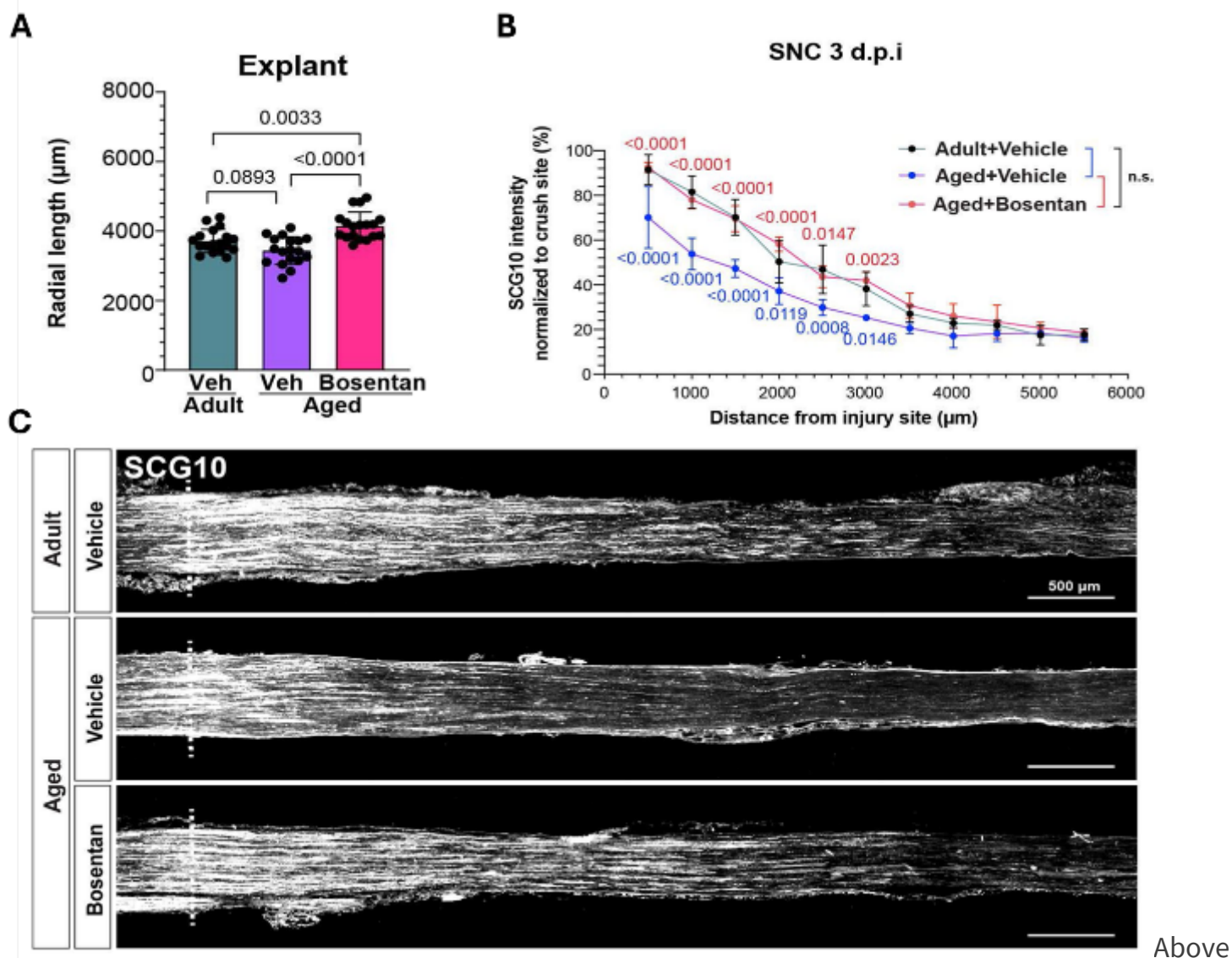


Figure: A) ETBR antagonism with Bosentan enhances nerve regeneration in aging mice (explant model); B, C) Similar effect is seen in vivo when measuring axonal regrowth length following sciatic nerve crush. Source: Feng et al. (2024) eLife

Publications

- Feng, R., Rosen, S., Ansari, I., Sebastian, J., Thomson, M. B., Geoffroy, C. G., & Cavalli, V. (2024). Endothelin B receptor inhibition rescues aging-dependent neuronal regenerative decline. eLife13:RP100217. <https://doi.org/10.7554/eLife.100217.1>

Applications

- Treatment for peripheral nerve injury, which has a high unmet need especially for aging patients.

Key Advantages

- Orally administered therapeutic, well-tolerated toxicity profile.

Patents

Provisional patent application filed.

Related Web Links – [Valeria Cavalli Profile](#); [Cavalli Lab](#)