



UNIVERSITY OF
NEWCASTLE

A first-in-class, selective collateral flow-enhancing nanotechnology for the treatment of ischemic stroke

SHEAR-TARGETED DRUG DELIVERY

Fast, targeted, and life-saving

SHEARFLOW

First-in-Class Nanotechnology for Ischemic Stroke Treatment

ShearFlow is developing Nanonitrate, a revolutionary first-in-class nanotechnology for treating ischemic stroke. This selective collateral flow-enhancing treatment targets the brain's bypass vessels, delivering vasodilating medication precisely where it's needed most. By harnessing the unique physics of high-velocity blood flow, Nanonitrate offers hope for the millions of stroke patients who cannot benefit from current therapies.

INNOVATION CAPABILITIES

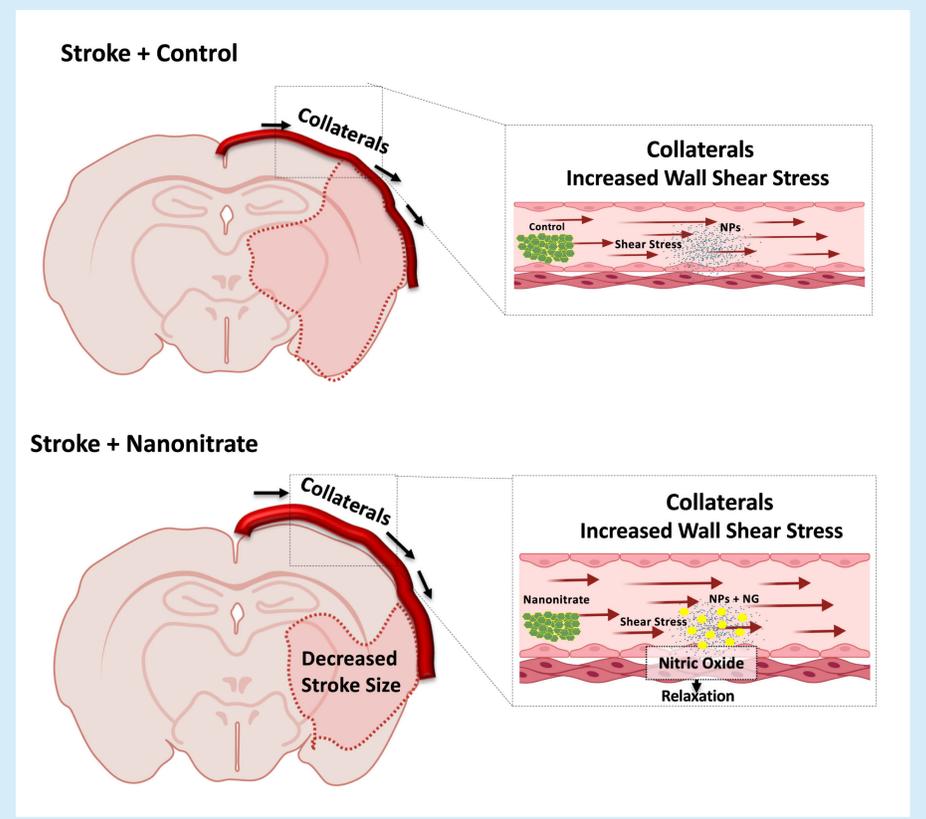
- **Shear-Targeted Drug Delivery:** Proprietary nanoparticle system that releases medication only in high shear-stress areas
- **Selective Collateral Enhancement:** First indication specifically designed to improve collateral blood flow in stroke
- **Rapid Therapeutic Action:** Demonstrated selective, rapid and significant improvements in stroke outcomes
- **Pre-Hospital Application:** Designed for early intervention before hospital arrival
- **Extensive Preclinical Data:** Proven efficacy in animal models with comprehensive safety profiles

MARKET IMPACT

- **Unmet Medical Need:** Addresses the 85% of stroke patients who cannot access current therapies due to timing and eligibility constraints
- **Global Market Opportunity:** Targeting the \$10.8 billion projected ischemic stroke therapeutics market by 2030
- **Significant Patient Population:** Estimated 220,000 eligible patients annually with potential serviceable market exceeding \$1 billion
- **Life-Changing Outcomes:** Stroke affects 1 in 4 people in their lifetime and is a leading cause of death and disability

REVOLUTIONISING STROKE TREATMENT THROUGH PHYSICS

Our breakthrough came from discovering that high-velocity blood flow in collateral vessels during stroke creates increased shear-stress. By developing nanoparticles that respond specifically to this physical force, we created the first therapy that can selectively dilate the brain's natural bypass vessels, potentially transforming outcomes for stroke patients worldwide.



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