

# TIMOTHY A. JOHNSON MEDICAL SCHOLAR LECTURE SERIES

Presented by the Fralin Biomedical Research Institute at VTC and the Virginia Tech Carilion School of Medicine



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## *Virtual Lecture: Von Willebrand Factor Inhibition in Acute Ischemic Stroke: From Target to Trial*

Acute ischemic stroke (AIS) is the leading cause of combined morbidity and mortality worldwide. Recombinant tissue plasminogen activator (rtPA) is the only approved pharmacological treatment for AIS but is limited to treating patients within 4.5 hours of stroke onset because of the risk of intracranial hemorrhage. Moreover, it is ineffective in treating large vessel occlusion (LVO) stroke. Endovascular mechanical thrombectomy (MT) effectively recanalizes LVO stroke but it is limited to highly-specialized hospitals, leaving the vast majority without timely acute treatment. Dr. Nimjee hypothesizes that targeted von Willebrand Factor (VWF) inhibition by BB-031 will recanalize arterial thrombosis in a canine model of LVO stroke. Utilizing a canine embolic middle cerebral artery occlusion (eMCAO) model of LVO stroke, his lab assessed BB-031 administration at 0.5mg/kg 6 hours after stroke induction on platelet activity by PFA-100, vessel recanalization by digital subtraction angiography, infarct volume and intracranial hemorrhage by MRI. BB-031 administration after 6 hours of LVO stroke resulted complete inhibition of platelet activity. Moreover, it recanalized MCAO to >TICI 2A in 62.5% and >TICI 2B in 50% of canines (n=8). Negative control group demonstrated no revascularization (n=7). Recanalization resulted in reduced infarct volume compared to negative control (p<0.05). BB-031 administration induced no intracranial hemorrhage. VWF inhibition by BB-031 completely inhibited platelet activity, and effectively recanalizes LVO when administered 6 hours after stroke onset. Recanalization resulted in reduced infarct volume, without any incidence of intracranial hemorrhage. Targeted therapy against VWF represents a robust yet safe approach to treat AIS.

FRIDAY, SEPT. 23 at 1 p.m.

Room M203, 2 Riverside Circle.

Watch live via Zoom at <https://virginiatech.zoom.us/j/82257173281> or at <https://fbri.vtc.vt.edu/events/live-webcast.html>.

