New Data Shows Strong Correlation Between Traditional Vascular Function Metrics and LarmorBio's Oxidative Stress Test

BOSTON, MA, UNITED STATES, May 7, 2025 /EINPresswire.com/ -- A new study utilizing LarmorBio's proprietary microscale magnetic resonance (MMR) platform presented at the European Atherosclerosis Society (EAS) meeting has demonstrated the ability of the system to identify early warning signs of vascular dysfunction in patients at risk for cardiometabolic disease. The study showed that LarmorBio's oxidative stress measurement in plasma was highly correlated with established risk metrics for cardiovascular risk and vascular function. It is well known that oxidative stress plays a critical role in vascular damage and cardiometabolic disease progression. However, while prior preclinical studies have shown the correlation of the company's test with organ damage, this is the first study demonstrating the link between LarmorBio's oxidative stress test and vascular damage in humans.

The study was conducted in a multi-ethnic cohort of 350 patients at Tang Tock Seng Hospital in Singapore. The study evaluated common measures of arterial stiffness, inflammation, and cardiac function. The data showed that the LarmorBio MMR oxidative stress measurement had highly statistically significant associations with key indicators of vascular health, including:

- HbA1c ($\beta=0.26$, $p<0.001$)
- High-sensitivity C-reactive protein (hsCRP) ($\beta=0.18$, $p<0.001$)
- Advanced glycation end-products (SAF-AGE) ($\beta=0.18$, $p=0.004$)
- Carotid femoral pulse wave velocity (PWV) ($\beta=0.16$, $p=0.005$)
- Heart rate variability index (HVRI) ($\beta=0.21$, $p<0.001$)
- Augmentation index ($\beta=0.24$, $p<0.001$)

Importantly, many of these metrics while clinically validated are not routinely used in clinical practice given cost and complexity. Given this fact, while additional research is needed, these findings potentially position microscale magnetic resonance as a transformative platform for detecting early oxidative stress — a central driver of vascular complications — and a potentially powerful complement to traditional diagnostic tools like HbA1c, lipid panels, and other common cardiovascular tests.

"This technology provides a sensitive, real-time window into the redox environment of the body, a capability that is not provided by any other technology. This allows us, for the first time, to assess the correlation between oxidative stress levels and disease activity using a simple, rapid,

low-cost blood test," said Rodolfo Rohr, CEO of LarmorBio and coauthor on the study. "By detecting molecular oxidative stress before clinical symptoms emerge, there is the potential to radically improve how we monitor and manage vascular risk in patients, and we may be able to identify patients at high risk of cardiometabolic disease progression not shown by traditional biomarkers."

Previous studies have demonstrated the ability of LarmorBio's oxidative stress test to predict organ damage in kidney disease with high oxidative stress levels being highly correlated with inflammation markers and histology endpoints in preclinical models.

"This is the second study, and the first in humans, showing high oxidative stress has a high correlation with damage to critical organ systems in the body and plays a significant role in chronic disease progression," said Michael J. McPhaul M.D., chief medical officer at LarmorBio. "

About LarmorBio:
LarmorBio is a pioneering life science research and clinical diagnostic company that has developed a microscale magnetic resonance technology for measuring critical biological data in blood and cell samples. The primary application of the technology is the ability to measure oxidative stress levels in blood which plays a critical role in early metabolic dysregulation and chronic disease progression. Prior to LarmorBio's platform, no technology could directly measure oxidative stress in under five minutes at low cost by an untrained user at the point of care. The company currently has deployed the system globally in partnership with major research hospitals and leading healthcare companies and has 14 peer-reviewed publications supporting the system's clinical utility.

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