

# PIONEERS IN BIOMEDICAL RESEARCH SEMINAR

Presented by the Fralin Biomedical Research Institute at VTC and co-sponsored by the institute's Center for Vascular and Heart Research



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## *In Person Seminar: Cross-Organ Communication Through Lipid Signaling*

Cold exposure is an energy demanding selective pressure. In response to a cold challenge, mammals activate nonshivering thermogenesis in brown adipocytes to produce heat. This process requires mobilization of peripheral stores of glucose and lipids that are produced by the white adipose tissue and liver. Dr. Simcox aims to understand the various lipids that are important for thermogenesis, determine where they are produced, and to functionally characterize their role in heat production. To answer these questions, her lab used age mice which are cold intolerant and defend a lower temperature set point. Using global lipidomics, her team found that circulating lipids are different in young and old mice and humans. In mice, this circulating lipid pool shifts with cold exposure in an age dependent manner. They also found that circulating sphingolipids and their metabolites are increased in cold exposure. Sphingolipid production is necessary for thermogenesis, and using acute pharmacological inhibition of sphingolipid synthesis led to cold intolerance. These extracellular sphingolipids act on brown adipocytes to regulate insulin sensitivity and increase fatty acid oxidation. Collectively, these findings show the signaling role of circulating lipids in thermogenesis and energy homeostasis.

FRIDAY, SEPT. 3, 2021 at 11:00 a.m.

Room G101A-B, 4 Riverside Circle. Registration required to attend in person at <http://fralinbiomed.info/simcox-seminar>.  
Masks must be worn. Watch live via Zoom at <https://virginiatech.zoom.us/j/82722436593> or at  
<https://fbri.vtc.vt.edu/events/live-webcast.html>.



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