

Louisiana Tech University Louisiana Tech Digital Commons

ANS Research Symposium

ANS Research Symposium 2019

Apr 11th, 8:30 AM - 11:30 AM

The Role of Notch1 and Notch3 in hADSC Adipogenesis

Mengcheng Liu
Louisiana Tech University

Hannah Logan
Louisiana Tech University

Jamie Newman
Louisiana Tech University

Follow this and additional works at: <https://digitalcommons.latech.edu/ans-research-symposium>

Recommended Citation

Liu, Mengcheng; Logan, Hannah; and Newman, Jamie, "The Role of Notch1 and Notch3 in hADSC Adipogenesis" (2019). *ANS Research Symposium*. 30.
<https://digitalcommons.latech.edu/ans-research-symposium/2019/poster-presentations/30>

This Event is brought to you for free and open access by the Conferences and Symposia at Louisiana Tech Digital Commons. It has been accepted for inclusion in ANS Research Symposium by an authorized administrator of Louisiana Tech Digital Commons. For more information, please contact digitalcommons@latech.edu.

The Role of Notch1 and Notch3 in hADSC Adipogenesis

Mengcheng Liu¹, Hannah Logan², and Jamie Newman³

¹Graduate Student, School of Biological Sciences, Louisiana Tech University

²Undergraduate Student, School of Biological Sciences, Louisiana Tech University

³Assistant Professor, School of Biological Sciences, Louisiana Tech University

Human adipose-derived stem cells (hADSCs) are multipotent cells with great potential in regenerative medicine. Notch is a conserved contact-dependent signaling pathway that determines cell proliferation and differentiation. The pathway includes four membrane receptors, Notch1-4, and our goal is to explore the role of Notch1 and Notch3 in hADSC adipogenesis to understand how they work together to regulate cell state. We found that the loss of Notch3 promoted adipogenesis as demonstrated by increased lipid droplets and enhanced expression of adipose-related genes. In addition, we observed increased expression of Notch3 during adipogenesis. Expression of Notch1 also increased during adipogenesis but, unlike Notch3, appears to promote lipid accumulation. Immunofluorescence showed that Notch1 was enriched in adipocyte differentiated hADSCs while Notch3 was highly expressed in and only in adjacent hADSCs not undergoing adipogenesis to maintain cells at stem cells state. Our research provides new targets for directed differentiation in tissue regeneration.

Format: Poster presentation