Slit/Robo signaling regulates Leydig cell steroidogenesis

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Video Byte

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Abstract

The Slit/Robo signaling molecules are famous for controlling how the axons of neurons reach their targets. But the proteins also have other functions, including a newly discovered role in the testes. Researchers at the University of Montreal studied Slit/Robo in the adult mouse testis. The team found the molecules expressed in the tissue, particularly in Leydig cells. These cells produce testosterone in response to luteinizing hormone. When treated with SLIT ligands, cultured Leydig cells reduced their expression of various steroidogenic genes. SLIT2 treatment also drove down the expression of a receptor. This diminished the ability of a Leydig cell line to respond to luteinizing hormone. On the flip side, mice without Robo1 had higher levels of intra-testicular testosterone. And Slit and Robo expression was augmented by in vitro testosterone treatment. The results suggest that Slit/Robo signaling regulates the production of hormones in Leydig cells – possibly as part of a negative feedback loop to limit testosterone synthesis.