LH increases insl3 mRNA abundance in MA-10 Leydig cells

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ABSTRACT

Leydig cells produce testosterone in response to luteinizing hormone (LH) via the cyclic adenosine monophosphate (cAMP)/protein kinase A pathway. Additionally, these cells are responsible for producing insulin-like peptide 3 (INSL3), a peptide hormone that is essential for testicular descent. The insl3 promoter in Leydig cells can be activated by cAMP through the transcription factor Nur77. While the mechanism of LH action on testosterone production is well characterized, the effect of LH on insl3 abundance has yet to be shown directly. MA-10 Leydig cells were treated with either 0 and 100 ng/mL LH for 3 and 6 hours in a 2x2 factorial design or 0 and 0.6 mM cAMP for 6 hours. Relative insl3 mRNA abundance was determined by quantitative reverse transcription PCR. While cAMP treatment failed to alter abundance of insl3 mRNA, treatment with 100ng/mL LH for 3 hours induced a significant increase in insl3 mRNA abundance. These data indicate that LH does increase insl3 mRNA abundance in MA-10 cells. Research funded by California Polytechnic State Faculty Support Grant #SF0101.