

Effect of desialylated human chorionic gonadotropin (hCG) on the bioactivity of rat Leydig cells

Ronco, Ana María

Tijmes, Matías

Santibáñez, Juan Fco.

Moraga, Paulina

Human chorionic gonadotropin is a glycoprotein hormone that, like LH, stimulates steroidogenesis in gonadal cells. Using a desialylation process, 95 per cent of the sialic acid residues from an intact standard hCG molecule were eliminated and then the electrophoretic properties and the bioactivity of the desialylated hCG were determined. Using rat Leydig cells as a biological model, the binding affinity to LH receptors of Leydig cell membranes, steroidogenic activity and second messenger production were studied. The results indicate that the loss of sialic acid from the hCG molecule slightly increases the binding activity to LH receptors and results in steroidogenic activity with an increased ED50. Cyclic AMP production was significantly reduced however and arachidonic acid release was not observed. Several possible mechanisms that could explain these results are discussed.