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JOURNAL ARTICLE

Hormonal modulation of the interactions of cultured rat testicular Sertoli and peritubular myoid cells. Effects on glycosaminoglycan synthesis

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Previous investigators have suggested metabolic cooperation between Sertoli and peritubular cells. This study concerns Sertoli cell and peritubular myoid cell interactions in terms of synthesis of one of the main testicular extracellular matrix (ECM) constituents, glycosaminoglycans (GAG). We have tested the effect of hormones and other regulatory agents such as a combination of FSH, insulin, retinol, and testosterone (FIRT) on monocultures of Sertoli and peritubular myoid cells, and have examined whether or not coculture of Sertoli and peritubular myoid cells substitutes for the stimulation by FIRT. Cocultures of Sertoli and testicular peritubular myoid cells showed significant increases in the levels of secreted protein and sulfoprotein, as well as in cell-associated GAG synthesis in untreated cultures. This indicates cell-cell cooperation between Sertoli and peritubular myoid cells in the testis in terms of sulfated protein and GAG synthesis. Addition of the hormone mixture and retinol (FIRT) stimulated cell-associated and ECM-associated GAG in peritubular myoid cells, suggesting a role of circulating hormones in ECM production by peritubular myoid cells in vivo. Cocultures of Sertoli and myoid cells substituted for the stimulatory response of FIRT on peritubular myoid cells, predominantly in terms of cell-associated GAG synthesis, which again emphasizes that the paracrine regulation of testicular ECM synthesis is dependent on Sertoli-myoid cell cooperation.

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