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Cell-Cell Interactions in the Testis of Adjuvant-Induced Arthritic Rat

ANGELA L. ASIRVATHAM AND BRENT C. BRUOT

From the Department of Biological Sciences, Kent State University, Kent, Ohio.

Correspondence to: Dr Angela Asirvatham, Veterans Affairs Medical Center, R&D-8, 3710 SW U.S. Veterans Hospital Road, Portland, OR 97201.

Rats with adjuvant-induced arthritis (AA) have low levels of serum testosterone, and production of testosterone reportedly is influenced by macrophage secretory products. This study was undertaken to understand the mechanism mediating this hypoandrogenism. Testicular macrophages from AA and nonarthritic (NA) rats were cultured, and conditioned media was added to testicular interstitial cells and Percoll-purified cells from NA rats. Testosterone production by interstitial cells stimulated with luteinizing hormone (LH) and incubated with adjuvant-induced arthritic macrophage conditioned medium (AAMCM) was significantly lower than in cells incubated with nonarthritic macrophage conditioned medium (NAMCM). However, there was no difference in testosterone production by Percoll-purified Leydig cells and those stimulated with LH when incubated with AAMCM or NAMCM. To determine whether an intermediary cell type was involved in mediating inhibition of testosterone production, AAMCM and NAMCM were added to a reconstituted preparation of testicular interstitial cells. Addition of AAMCM restored the inhibitory effect, suggesting that arthritic hypoandrogenism is mediated by cell-cell interaction. These results suggest that a factor produced by macrophages from AA rats appears to mediate testosterone production by acting in conjunction with other cells in the testicular interstitium.

Key words: Arthritis, hypoandrogenism, Leydig cells testosterone, testicular macrophages

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