

NATURAL KILLER CELL ACTIVITY IN THE ADULT RAT TESTIS

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Immune privilege of the testis is due to an inability to recognise and respond to antigens within the testis, and implies that innate immunity against tumours and infections, such as that afforded by natural killer (NK) cells, may be important. Our previous studies established the existence of cells that express NK markers in the rat testis, but the functional activity of these cells has not been assessed previously. Testicular interstitial cells were collected from adult male Sprague-Dawley rats by mechanical dissociation, and macrophages were removed by adherence depletion. These interstitial cell preparations contained on average 3% cells expressing the NK cell marker, CD161. The interstitial cells (effector cells) were labelled with 5-(6)-carboxy-fluorescein succinimydyl ester (CFSE), and cultured at various effector : target cell ratios with YAC-1 tumour cells (target cells) overnight. The combined cells were labelled with 7-amino actinomycin D (7-AAD), which stains the nuclei of cells undergoing apoptosis. Cells were fixed with paraformaldehyde and analysed by flow cytometry. The proportion of target (CFSE negative) cells expressing 7-AAD staining (mean \pm SD, $n = 4$ experiments) increased as the effector : target cell ratio was increased: $3.5 \pm 3.6\%$ (no. effector cells; background), $24 \pm 7.0\%$ (effector : target cell ratio, 2 : 1), $25.8 \pm 11.7\%$ (7 : 1), $41.8 \pm 17.0\%$ (20 : 1), and $71.7 \pm 12.7\%$ (60 : 1). These data indicate that functional NK cells are present in the rat testicular interstitial cell preparations, and may contribute to innate immune protection in the rat testis.