

35. OVARIAN MACROPHAGE REGULATION OF INFLAMMATORY RESPONSES AT OVULATION IN MURINE OVARIES

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Ovulation has been likened to an inflammatory reaction [1]. We have observed transient increases in inflammatory cytokine mRNA production in ovarian macrophages accompanied by similar increases in secreted proteins. To produce an inflammatory profile the production of anti-inflammatory agents must occur following ovulation, and it was our aim to examine the production of the anti-inflammatory agent IL-10 to determine if this cytokine plays a role. Ovaries from gonadotrophin-primed immature mice were removed at various times and enzymatically digested. Macrophages were tagged with the specific antibodies F480 or anti-MHC II (anti-Ia) and isolated using antibody panning. mRNA was isolated from some macrophages and analysed by quantitative RT-PCR, other macrophages were cultured and secreted IL-10 levels measured. Analysis of IL-10 mRNA and protein levels in ovarian macrophages showed that although it is produced by these cells, there were no changes in cytokine mRNA or protein across the stimulated cycle, suggesting that this cytokine does not influence the inflammatory cytokine profile. Alternative means of controlling inflammation associated with ovulation have therefore been examined. The nuclear receptor peroxisome proliferator-activated receptor (PPAR) gamma has anti-inflammatory activity, including downregulation of macrophage secreted factors such as iNOS, gelatinase-B, IL-1 β , IL-6 and TNF α in splenic, peritoneal and alveolar macrophages [2]. We have demonstrated for the first time that PPARs are expressed in ovarian macrophages, and further analysis of their expression profile during the gonadotropin-stimulated cycle indicates that the regulated expression of these receptors may modulate the inflammatory reaction that occurs at ovulation.

(1) Espey L. (1980) *Biol. Reprod.* **22**: 73–106. (2) Ricote M. *et al* (1999) *J. Leukoc. Biol.* **66**: 733–9.