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P19. Pharmacological regulation of estrogen receptors in macrophages: impact for the female reproductive tract

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Context. Beyond their role against infections, macrophages actively participate in the homeostasis of the female reproductive tract (FRT), where their abundance and activity are tightly regulated in time and space throughout the ovarian cycle. Macrophages are key players in the immunomodulatory effects of estrogen against infections and in several immune-inflammatory pathologies. However, we recently observed that the estrogen signal per se, in the absence of any danger signal, triggers the expansion of macrophages as well as specific functions that also involve the promotion of a tolerant and renewable environment. We thus hypothesize that estrogen actions in the FRT may also require hormone-instructed macrophages, to either induce a permissive environment for oocyte maturation, movement and further steps in case of fertilization, or to allow for the next reproductive cycle to occur through tissue remodeling and reconstruction. In this scenario, the effects of estrogenic drugs in macrophages are not known.

Objective. In this study we evaluated the effects of tamoxifen and raloxifen on the expression of genes that are estrogen targets in macrophages.

Methods. Primary cultures of mouse peritoneal and bone marrow-derived macrophages were used to evaluate the expression of target and sex steroid receptor genes by realtime PCR assay.

Results. Our preliminary data show that tamoxifen and raloxifen act similarly to the physiological ligand, 17beta-estradiol, although to a different extent depending on the ligand and macrophage population. Additional results will be discussed.

Conclusions Our study allowed to evaluating the activity of estrogenic ligands on macrophage polarization; these data suggest that individual alterations or the pharmacological stimulation of this endocrine-immune signaling may lead to defective or abnormal control of FRT homeostasis, with relevant consequences also for estrogen and macrophage-dependent gynecological diseases, such as endometriosis and uterine cancer.

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