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SR-B1 and PGRMC1 Expression in Canine Uterine Macrophages

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Image Article

In a previous study [1] the scavenger receptor SR-B1 was identified to be upregulated in the progesterone responsive metestrous and pyometra affected canine uterus. In a follow-up study SR-B1$^+$ expression was identified in IBA1$^+$/MAC387$^-$ stromal cells, which were therefore characterized as macrophages (**Figures A-E**). A comparable cell population was identified between myometrial smooth muscle bundles (**Figures F-I**). These SR-B1$^+$/IBA1$^+$ cells were positive for PGRMC1 (**Figure H**). Dressing et al. [2] summarized data suggesting that progesterone acts upon immune cells *via* non-genomic pathways rather than nuclear progesterone receptors, but data are inconsistent. Our preliminary findings strengthen the hypothesis that these PGRMC1$^+$/SR-B1$^+$/IBA1$^+$ macrophage-like cells might be activated or recruited *via* progesterone in the canine uterus.

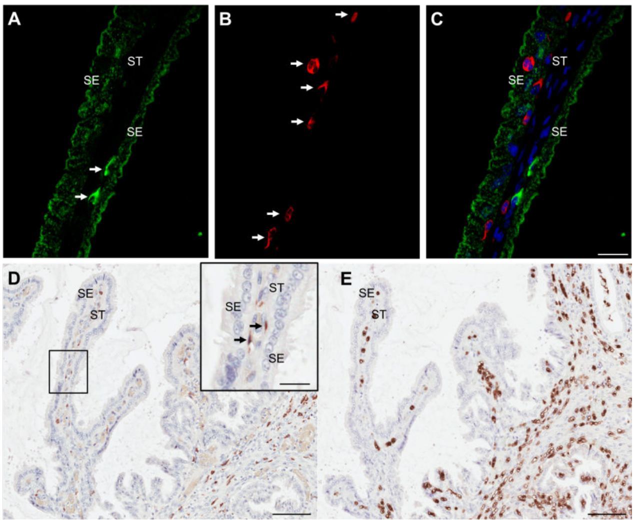

Figure A-C: Immunofluorescent detection of SR-B1 (green, A) and MAC387 (red, B) in the canine endometrial surface epithelium (SE) and specific cells (arrows) within the stroma (ST). SR-B1 positive cells were negative for MAC387 (merged figure C; nuclear counterstaining: DAPI in blue). Figure D and E: The dendritic morphology of IBA1 positive cells (D; brown cells, arrows) was different to the spheroidal appearance of MAC387$^+$cells (E).

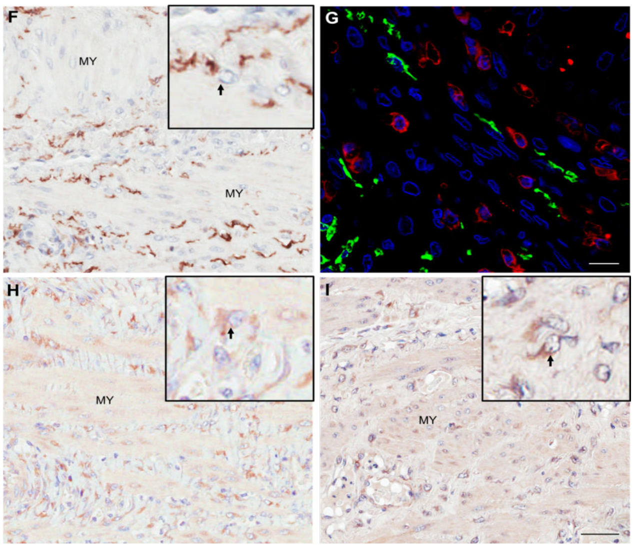

Figure F-I: Despite the smooth muscle bundles of the myometrium (MY) IBA1$^+$ cells (F, arrow) that were negative for MAC387 (G: IBA1 green, MAC387 red, nuclear counterstaining: DAPI in blue) were identified to be positive for PGRMC1 (H, arrow) and SR-B1 (I, arrow).

Reference

1. Gabriel C, Becher-Deichsel A, Hlavaty J, Mair G, Walter I (2016) The physiological expression of scavenger receptor SR-B1 in canine endometrial and placental epithelial cells and its potential involvement in pathogenesis of pyometra. Theriogenology 85: 1599-1609.
2. Dressing GE, Alyea R, Pang Y, Thomas P (2012) Membrane progesterone receptors (mPRs) mediate progestin induced antimorbidity in breast cancer cells and are expressed in human breast tumors. Horm Cancer 3: 101-112.