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In vitro evaluation of macrophages phagocytosis activity in cats with feline infectious peritonitis: preliminary results

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Feline coronavirus (FCoV) is the major pathogen of *Felidae* family with a worldwide distribution [1]. In cats it is highly prevalent in multi-cat environments; FCoV replicates in the intestines and can spread by oral-fecal transmission [1]. FCoV is separated into two pathotypes that are referred to feline enteric coronavirus (FECV) and feline infectious peritonitis virus (FIPV) [1]. Following the infection of the enteric epithelium, the virus can spread systemically developing the feline infectious peritonitis (FIP) [2-3]. Previous studies suggested that responses of macrophages to the virus followed by depletion of CD4+and CD8+T-lymphocytes are crucial for understanding the virus-host interactions [4-5]. The aim of this study was to evaluate the phagocytosis activity of monocyte-derived macrophages in FIPV-infected cats. The study population consisted of 15 cats with FIP and 13 cats positive for FcoV (control). Venous blood samples remaining from medical procedures were used to isolate monocytes. Two methods of isolation were used: a) peripheral blood mononuclear cells (PBMC) were separated from the buffy coat within 24 hours after obtaining the blood specimens [6]; b) magnetic-separation of CD14-positive cells from whole blood. Monocytes were allowed to attach to the slide and culture medium containing phorbol 12-myristate-13-acetate was added to induce macrophage differentiation [6]. After 24 hours, a solution with *Saccharomyces cerevisiae* was added to allow phagocytosis. Phagocytosis was measured by counting, microscopically, the number of ingested yeasts within the macrophages [7]. The mean of the number of phagocytic cells undergoing yeast phagocytosis was evaluated on 3 microscopic fields between the two groups. Medium ± SD percentage of macrophages phagocytosis in cats with FIP was 14.4 ± 5,8 and in the control group was 39,3 ± 17,7. Our preliminary results showed that in cats with FIP the percentage of macrophages phagocytosis is lower than the control group suggesting an "anergy" of phagocytic system cells that may allow the virus to use macrophage or monocyte as a *"trojan horse"* to evade the host defence.

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