

The Role of IL-6 in the Immune Response of Glial Cells Against *Neospora caninum*

Gomes, L.M.¹; Jesus, E.E.V¹, Santos, A.B.¹; Silva, A.B.¹; Pinheiro, A.M.²; Freire, S.M.³; Tardy, M.⁴, El-Bachá, R.S.¹, Costa, S.L.¹; Costa, M.F.D.¹

¹Laboratório de Neuroquímica Biologia Celular–ICS/UFBA.

²Laboratório de Bioquímica e Imunologia Veterinária-UFRB

³Laboratório de Imunologia e Biologia Molecular–ICS/UFBA

⁴Laboratory of Cell Plasticity and Therapy Inserm UPXII-França.

Neosporosis, caused by *Neospora caninum*, is an important cause of abortion in cattle and neurological diseases in dogs. The systemic immune response to this parasite is characterized by a Th1 phenotype, but in central nervous system (CNS), the resistance to the infection is related to an anti-inflammatory pattern. We have already shown that there is a high production of IL-6 and IL-10 by glial cells infected by *N. caninum* and parasitemia in these cells became less intensive with an anti-IL-10 monoclonal antibody treatment. This study aimed to evaluate the role of IL-6 in glial cells infected by *N. caninum*. Astrocytes and microglia cultures from rat brain cortex were treated with anti-IL-6 monoclonal antibody and infected with *N. caninum* tachyzoites. After 72h of infection, parasite proliferation and cell viability, by Lactate Dehydrogenase (LDH) activity, were evaluated. It could be observed that, with IL-6 blocking, the number of tachyzoites reduces 43.7%, showing that this cytokine contributes to maintain the parasite infection in CNS. Regarding LDH activity, there was no difference in glial viability of infected cells treated or not with anti-IL-6 antibodies, suggesting a weak participation of this cytokines in maintenance of cellular integrity during parasitism. These results demonstrate the importance of IL-6 in the immunopathogenesis of Neosporosis in CNS, and more studies are needed to clarify how *N. caninum* modulates the production of this cytokine in glial cells.