

Profiling chemokine response to *Leptospira interrogans* infection in three lineages of mice with different susceptibility to leptospirosis

Domingos RH¹, Caldas M¹, Ho PL¹, Martins EA¹, Da Silva JB¹

¹Centro de Biotecnologia; Instituto Butantan, Brasil.

Introduction: Leptospirosis is a neglected worldwide-spread disease, effecting most mammalian species. Clinical signs can be confused with other diseases, what difficult the diagnosis and treatment. Chemokines are cytokines well known for their role in inflammatory and host immune response to infections. Profiling chemokine expression in the course of infection may elucidate the host defense mechanisms and help the research for treatment strategy. **Objectives:** Evaluate the innate immune mechanisms by the expression of transcripts of chemokines induced by *L. interrogans* infection in mouse cell line, and in freshly isolated leukocytes from spleens of mice strains C3H/HeJ, C3H/HePas and BALB/c, respectively susceptible, intermediary and resistant to leptospirosis. **Methods:** Virulent *L. interrogans* was used to inoculate cultures of macrophage and leukocytes of mice. Cells were collected at 2, 8 and 24 h after inoculation and total RNA was extracted. Total RNA of each sample was reversely transcribed to cDNA and chemokines transcripts were quantified by qPCR. **Results and Discussion:** the leptospiral infection results in an upregulation of CXCL16, CXCL11, CXCL9, CXCL5, CCL6, CCL19 and CCL22 transcripts. Mice from different lineages respond differentially, being characteristics an early peak of CXCL9 transcription in BALB/c and an early peak of CXCL5 transcription in C3H/HePas. All mice strain presented an increase in CXCL16 transcripts, but higher level was observed in BALB/c, with a high peak occurring 8 h after infection. It would be expected an upregulation of CCL19 and CCL21, whose receptor CCR7 is expressed on B-cells and T-cells, and is involved on homing to secondary lymphoid organs, but only CCL19 was differentially expressed in response to leptospiral infection. CCL19 was increasingly expressed in BALB/c, beginning at 2 h after infection. CXCL16 and CXCL11 were increased in early course of infection in BALB/c and C3H/HePas mice strains. The increase in transcripts level of the different chemokines indicates the contribution of these molecules in the resistance mechanisms in BALB/c mice strain. Taking into consideration the low level of chemokines expression in the susceptible C3H/HeJ mice strain, when compared to the early and high levels response in the resistant BALB/c and intermediary C3H/HePas, it implies that the innate immune response is fundamental for the resistance to leptospirosis.

Keywords: Chemokines, *Leptospira*, C3H/HeJ, C3H/HePas and BALB/c.

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