

β -D (1 $\rightarrow$ 4)-Galactan from *Sicana odorifera* induces an Immunosuppressive Profile in Peritoneal Macrophages

Abreu, E. C. A.¹*; Kienteka, S.S.¹; Corrêa-Ferreira, M.L.; Petkowicz, C.L.O.¹; Noieto, G.R.^{1**}

1

¹Dep. de Bioquímica e Biologia Molecular, UFPR, PR, Brazil.

*ec.daa@hotmail.com; **guinoieto@yahoo.com.br

INTRODUCTION: Polysaccharides from different plants have shown significant immunomodulator potential. It have been demonstrated that β -D-galactan-(1 $\rightarrow$ 3,6) and (1 $\rightarrow$ 4) fragments are important to stimulate Peyer's patch and macrophages. **OBJECTIVE:** The aim of this study was to evaluate the effects of the β -D (1 $\rightarrow$ 4)-galactan from *Sicana odorifera* on peritoneal macrophages. **MATERIAL AND METHODS:** The peritoneal macrophages were collected from mice, and the cells were incubated to adhesion for 2 h at 37 °C, under 5% CO₂. Adherent macrophages were incubated for 24 or 48 h in the absence (control) or presence of the β -D (1 $\rightarrow$ 4)-galactan at 50 and 100 μ g/ml. The cell viability was measured by MTT method. The superoxide anion and nitric oxide (NO) production were measured by NBT and Griess assays, respectively. The phagocytic activity was evaluated with yeast and the interleukin levels were quantified by ELISA. **RESULTS AND DISCUSSION:** The macrophages viability was not drastically affected by galactan treatment for 24 and 48 h. The galactan in both concentrations decreased the macrophages number with activation of the morphologic profile. The phagocytic activity was reduced by ~50% with galactan (50 μ g/ml) and this result was also confirmed in the presence of the polymer plus Lipopolysaccharide (LPS). After 1 h of incubation, the production of superoxide anion by macrophages was reduced at 70% in the presence of LPS plus the polymer (100 μ g/ml). The production of NO in the presence of LPS plus galactan (50 μ g/ml) for 48 h was also reduced. At 6 h of incubation, galactan (50 μ g/ml) increased at ~100% the TNF- α level in macrophages. The polymer (100 μ g/ml) reduced at ~95% the IL-1 β production, but increased the IL-10 level at ~57% in 48 h. **CONCLUSION:** The results show that the β -D (1 $\rightarrow$ 4)-galactan of *Sicana odorifera* triggers the macrophages to an immunosuppression profile.

Key-words: Galactan, Immunosuppressive, peritoneal macrophages, polysaccharides.

Supported by: CNPq, CAPES.