

REFERENCE

P264

A study on the immune response elicited in mice challenged with *Staphylococcus epidermidis* planktonic- or biofilm-grown cells

Cerca, F.¹, Teixeira, L.¹, Cerca, N.², Madureira, P.¹, Ribeiro, A.¹, Azeredo, J.² and Vilanova, M.^{1,3}

1. Laboratório de Imunologia Mário Arala Chaves, Instituto de Ciências Biomédicas de Abel Salazar, Porto

2. Departamento de Engenharia Biológica, Universidade do Minho, Braga

3. Instituto de Biologia Molecular e Celular, Universidade do Porto, Porto

E-MAIL : fcerca@hotmail.com

In this study a biofilm-forming strain of *Staphylococcus epidermidis* was used in order to evaluate, in a murine model, the immune response to bacteria grown either as planktonic cells or biofilm. Groups of male BALB/c mice were infected intra-peritoneally (i.p.), with 2×10^8 *S. epidermidis* cells per mice, obtained either from a mature biofilm (grown for 48h) or from a planktonic cell culture. Mice were sacrificed 6h, 24h and 8 days after the i.p. infection. Flow cytometric and qualitative cytospin analysis of cells recovered from peritoneal exudates, 24h after infection, indicates that the bacterial cells obtained from the biofilm were less inflammatory than planktonic. Splenomegaly was observed in mice 8 days after the bacterial challenge, more pronounced in mice challenged with planktonic cells. Flow cytometric analysis of spleen cells showed in both groups of bacteria-challenged mice an increase in the number of lymphocyte cells, more marked in the animals challenged with planktonic cells. The isotypic profile of the immunoglobulins present in the sera of each group of mice was analysed by ELISA. Extracellular polymeric substance (EPS) isolated from a *S. epidermidis* biofilm grown for 48h inhibited in vitro nitrite production by macrophages stimulated with LPS and interferon-gamma. Our results indicate that *S. epidermidis* biofilm-grown cells were less inflammatory than planktonic cells, and suggest that EPS could diminish the inflammatory response elicited in the host by this bacterium.

1. Vuong, C. and Otto, M. (2002) *Microbes Infect.* **4**:481-489.

2. Donland, R. and Costerton, J. (2002) *Clin Microbiol* **15**:167-193.