



P 64 Soluble CD 40 and soluble CD40L concentrations in supernatant of lymphocyte culture of individuals with serological signs of infection with *B. burgdorferi*

Joanna M. Zajkowska, Sambor Gregorczyk, Maciej Kondrusik, Sławomir Pancewicz, Renata Świerzbńska

Dept. of Infectious Diseases and Neuroinfections, Medical University in Białystok, Poland

The combination of molecules CD40 and CD40L (CD154) is crucial in initiating a specific immune response. Expression of molecules and presence soluble forms is a visible reaction to a known antigen stimulation. The aim of this study was to evaluate the concentration of soluble forms of CD40 and sCD40L molecules in the lymphocyte culture supernatant samples taken from patients with serological features of infection with *B. burgdorferi* s.l. and no signs of infection after stimulation with live spirochetes *B. burgdorferi*.

CD40 and sCD40L determinations were made in 88 samples from patients treated in the Dept. of Infectious Diseases and Neuroinfections, Medical University of Białystok. Blood samples were collected from the patients divided into 2 groups: the control group (1), n=25, without serological signs of infection: the study group (2), n=63 patients with serological features of *B. burgdorferi* s.l. infection (confirmed by ELISA and Western blot). For isolation of PBMC, 8 ml of venous blood was drawn to heparin-coated tubes. PBMC were cultured in sterile tubes in 5% CO₂ at 37°C. PBMC from each subject were cultured (i) in pure medium, (ii) with addition of the spirochete strains representing 3 pathogenic genospecies of *B. burgdorferi* s.l. present in Poland.

Comparison of medium concentrations sCD40 ($p < 0.005$) and sCD40L ($p < 0.0001$) in the supernatant of tested groups of healthy and infected individuals showed essentially statistical differences (Kolmogorow-Smirnow test and U Mann-Whitney test). The differences were also confirmed when using ROC ($p < 0.002$, $p < 0.00001$). The differences were stronger for sCD40.

The responses of lymphocytes to stimulation with *B. burgdorferi* were significantly different in the groups of infected and uninfected individuals. Determination of the concentration of molecules CD40 and sCD40L in the culture of lymphocytes taken from patients with symptoms of an infection with *B. burgdorferi* may be useful as a biomarker of infection *B. burgdorferi* s.l.