**Institute for Biological Research "Siniša Stanković" National Institute of Republic of Serbia**
**University of Belgrade**

**Immunological Society of Serbia**

# IMMUNOLOGY AT THE CONFLUENCE OF MULTIDISCIPLINARY APPROACHES

## ABSTRACT BOOK

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Poster presentation

## MODULATION OF FUNCTIONAL CHARACTERISTICS OF MURINE PERITONEAL MACROPHAGES BY DEHYDROGENATE POLYMER FROM CONIFERYL ALCOHOL AND ALGINATE

Ana Kovačević[1], Ivana Lukić[1], Emilija Marinković[1], Radmila Miljković[1], Aleksandra Inić-Kanada[2], Dragica Spasojević[3], Ksenija Radotić[3], Marijana Stojanović[1]

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The dehydrogenate polymer from coniferyl alcohol (DHP; a lignin model compound) in alginate hydrogel (ALG) has been shown to exert a strong antibacterial activity. To broadens a spectrum of potential DHP/ALG application, we aimed this study to evaluate the immunomodulatory activity of DHP/ALG. DHP and ALG were tested separately and in mixture (1:2 w/w) for their impact on *in vitro* production of cytokines (IL-6, IL-12, and IL-10) and reactive oxygen (ROS) and nitrogen (RNS) species by resident (RMs) and thioglycolate-elicited (TGMs) peritoneal macrophages of BALB/c mice. RMs and TGMs were stimulated (48h) with ALG and DHP in concentrations previously shown to be non-cytotoxic (up to 50 and 25 μg/ml, respectively). DHP/ALG promotes simultaneous production of inflammatory (IL-6, IL-12) and regulatory cytokines by RMs in a positive dose-dependent manner. Production of inflammatory cytokines was stimulated by ALG, while an increase in IL-10 production positively correlated to the concentration of DHP. ALG also stimulated the production of IL-12 by TGMs, which was mirrored in the outcome of ALG/DHP stimulation. The significant increase in the activity of myeloperoxidase (MPO) due to DHP and/or ALG stimulation was recorded in TGMs, while a slight increase in MPO activity in RMs was recorded only upon stimulation with the higher amount of ALG. ALG in a positive dose-dependent manner stimulated the production of ROS and RNS by both RMS and TGMs. In all cases, except ROS production by RMs, the impact of ALG stimulation was mirrored in the outcome of ALG/DHP stimulation. Our results suggest that DHP/ALG exerts an immunomodulatory activity that could complement already reported antimicrobial activity and warrants further investigation on the use of DHP/ALG in the treatment of infectious diseases. (Supported by Ministry of Education, Science and Technological Development Republic of Serbia, grants 172049 and 173017)