

**FOURTEENTH ANNUAL CONFERENCE**

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P.S.E.25.

**COMPARATIVE STUDY OF THE EFFECTS OF DIFFERENT NANOMATERIALS  
ON THE VIABILITY OF HUMAN OSTEOBLAST-LIKE CELLS**

S. Stojanović<sup>1</sup>, S. Najman<sup>1</sup>, Z. Ajduković<sup>2</sup>, N. Ignjatović<sup>3</sup>, D. Uskoković<sup>3</sup>

<sup>1</sup>University of Niš, Faculty of Medicine, Institute of Biology and Human Genetics, Niš, Serbia;

<sup>2</sup>University of Niš, Faculty of Medicine, Clinic of Stomatology, Department of Prosthodontics, Niš, Serbia; <sup>3</sup>Institute of Technical Sciences of SASA, Belgrade, Serbia

The aim of this study was to compare the effects of two types of nanomaterials, cobalt-exchanged hydroxyapatite (CoHAp) and calcium phosphate/poly-(DL-lactide-co-glycolide) (CP/PLGA), on the viability of Saos-2 osteoblast-like cells, using MTT test. We have examined the suspension of this materials in the following concentrations: 1.6, 8, 40, 200, 1000 and 2500 µg/ml, as well as extracts in concentration range from 2,5% to 100%. Both materials showed cytotoxic effect at higher concentrations of suspension and extract, respectively, but they were not cytotoxic at lower concentrations. CP/PLGA acted stronger cytotoxic compared to CoHAp, regardless of whether it is examined suspension or extract. CoHAp in small concentrations of suspension and extract acted slightly stimulatory on cells. This suggests that CoHAp may have advantage for use in the *in vivo* systems.

P.S.E.26.

**ADIPOSE DERIVED MESENCHYMAL STEM CELLS AS A MODEL FOR STUDY  
OF OSTEOINDUCTIVE ACTIVITY OF BONE SUBSTITUTING BIOMATERIALS**

S. Najman<sup>1,5</sup>, S. Stojanović<sup>1</sup>, J. Najdanović<sup>1</sup>, J. Živković<sup>1</sup>, D. Petrović<sup>2</sup>, I. Vučković<sup>2</sup>, V. Cvetković<sup>3</sup>, Lj. Sekulović<sup>1,4</sup>, D. Tričković-Vukić<sup>5</sup>, M. Vukelić<sup>1</sup>, P. Vasiljević<sup>3</sup>, M. Trajanović<sup>6</sup>

<sup>1</sup>University of Niš, Faculty of Medicine, Institute of Biology and Human Genetics, Niš, Serbia;

<sup>2</sup>University of Niš, Faculty of Medicine, Clinic of Stomatology, Department of Maxillofacial Surgery, Niš, Serbia; <sup>3</sup>University of Niš, Faculty of Science and Mathematics, Department of Biology and Ecology, Niš, Serbia; <sup>4</sup>General Hospital „Sava Surgery“, Niš, Serbia; <sup>5</sup>University of Niš, Faculty of Medicine, Scientific Research Center for Biomedicine, Niš, Serbia; <sup>6</sup>University of Niš, Faculty of Mechanical Engineering, Laboratory for Intelligent Manufacturing Systems, Niš, Serbia

Adipose derived mesenchymal stem cells (ADMSC) show remarkable plasticity because of their potential for differentiating into various cell types, including cells which are characteristic for osteogenic process, such as osteoblasts and endothelial cells. Their cultivation on biomaterial scaffolds is a common approach in tissue engineering. In our previous *in vivo* studies we used ADMSC for implantation into the experimental animals onto the bone substituting biomaterials as carriers. Our *in vitro* studies showed that cultivation of human and murine ADMSC in normal and osteoinductive medium with or without biomaterials can be a good model for assessing their bone substituting potential.