

5<sup>th</sup> International Conference on

# Tissue Engineering & Regenerative Medicine

September 12-14, 2016 Berlin, Germany

## Non-human primates' mesenchymal stem cells for tissue engineering

Elena A Gubareva<sup>1</sup>, Elena V Kuevda<sup>1</sup>, Dzhina D Karal ogly<sup>2</sup>, Ivan S Gumenyuk<sup>1</sup>, Alexander S Sotnichenko<sup>1</sup> and Irina V Gilevich<sup>1</sup><sup>1</sup>Kuban State Medical University, Russia<sup>2</sup>Federal State Budgetary Institution, Russia

Tissue engineering may become an alternative way of treatment being focused on replacement and regeneration of damaged tissues and organs. Non-human primates' model (NHP) is close to human and can be used for tissue-engineered constructions testing and investigation. The main problem is the choice of the cellular line for a recellularization of the scaffolds. In our study, we used 4 male macaques (*Macaca mulatta*) after all ethical requirements. Native diaphragms, lungs and esophagi were used for detergent-enzymatic decellularization for biological scaffolds obtainment. MSCs from bone marrow were obtained under anesthesia and used for characterization, cultivation and static recellularization of the scaffolds with the subsequent evaluation of cells' metabolic activity and viability with XTT test and Live/Dead staining respectively. Before the recellularization, the population of MSCs was differentiated in adipogenic, chondrogenic and osteogenic directions with qualitative analyses by Oil Red O, Toluidine Blue and Alizarin staining. After obtainment and on the second and sixth passages of cultivation, cells were characterized by CD73+/CD90+/CD105+/CD45-/CD34-immunophenotype that is very important for cells specificity identification and further use of cells for recellularization. The obtained cells showed the ability to differentiate into 3 lineages and their immunophenotype correlated with the MSCs immunophenotype proving relating to MSCs. After 48 and 72 hours of scaffolds cultivation cells showed attachment to all biological scaffolds, metabolic activity and proliferation. Live/Dead staining showed the domination of live cells. MSCs obtained from NHP are a promising source for scaffolds testing before the whole organ reseeded.

### Biography

Elena A Gubareva has completed her MD and the PhD from Kuban State Medical University, Krasnodar, Russia. She works as Laboratory Head in International Research, Clinical and Education Center of Regenerative Medicine, Kuban State Medical University, Krasnodar, Russia. She has published more than 60 papers in reputed journals both in Russia and abroad.

g\_jena82@list.ru

### Notes: