

REPORT

By Aleksandr Sergeevych Sotnichenko

senior laboratory assistant of the department of pathologic anatomy of SBEI HPEKSMU of the Ministry of Healthcare and Social Development of the Russian Federation on the training in the Karolinska Institute

Purpose of training: gaining of experience of work in laboratory of regenerative medicine, studying of methods and ways of organs and tissues decellularization, seeding of biosynthetic scaffolds for manufacturing of bioengineered trachea aimed at implementation of further work on the grant of the Government of the Russian Federation on direction “Molecular and cellular biology, biotechnology, regenerative medicine”.

Place of training: Sweden, Stockholm, Karolinska Institute.

Dates of Training: 09.04.2012 – 23.04.2012.

Individual program plan of practical training

№	Date	Plan of work in the laboratory
1.	10.04.12 Tue	Took part in the making of rat heart-lungs preparation
2.	11.04.12 Wed	Took part in the making of rat heart-lungs preparation Isolated mononuclear cell fraction from rat bone marrow
3.	12.04.12 Thu	MMSC: Continuation of work Studied the main principles of bioreactor and scaffold sterilization Studied the main principles of organs (heart, esophagus) decellularization
4.	13.04.12 Fri	MMSC: Continuation of work Studied the main principles of organs (heart, esophagus) decellularization
5.	16.04.12 Mon	MMSC: Continuation of work Isolated mononuclear cell fraction from rat bone marrow

		<p>Took part in studying of the processes of seeding of decellularized heart and lungs.</p> <p>Workshop: «Fundamental principle of regenerative medicine»</p> <p>Studied the main principles of organs (heart, esophagus) decellularization</p>
6.	17.04.12 Tue	<p>MMSC: Continuation of work</p> <p>Trachea cultivation: continuation of work</p> <p>Studied the main principles of organs (heart, esophagus) decellularization</p>
7.	18.04.12 Wed	<p>MMSC: Continuation of work</p> <p>Mastered the method of trachea cultivation with the use of bioengineered scaffold</p> <p>Studied the main principles of work of bioreactor for different organs, above all trachea</p>
8.	19.04.12 Thu	<p>MMSC: Continuation of work</p> <p>Isolated mononuclear cell fraction from rat bone marrow</p> <p>Trachea cultivation: continuation of work</p> <p>Carried out histo- and immunohistological analyses (preparation and evaluation of the material)</p>
9.	20.04.12 Fri	<p>MMSC: Continuation of work</p> <p>Cryopreservation of cell cultures.</p> <p>Carried out sampling of artificial trachea for histo- and immunohistochemistry methods of research and electric microscopy</p>

Results achieved:

Gained experience of work in the laboratory of regenerative medicine during the training. Studied the methods of preparations of animal cardiopulmonary complex of organs, ways of organs decellularization. Mastered some stages of examination of decellularized organs – histological processing, light and fluorescence microscopy of these organs. Gained skills of bone marrow isolation from animal bone preparations for the following mononuclear cell fraction isolation. Studied the bioreactor mechanism. Watched the process of cultivation of the synthetic bioengineered scaffold, seeded with mononuclear cells, in bioreactor.

SotnichenkoA.S.

Supervisor of the training MD, PhDP.Macchiarini

Teacher

MD, PhDP.Jugenbluth