

## R&D and Laboratory Services

Educell Ltd. has its own research group which successfully collaborates with other research institutions from Slovenia and from other EU countries (in 6th and 7th EU FP). We are open for project collaborations with other research groups from the academic environment as well as from industry.

According to our expertise we offer:

- Collaborations in R&D in cell culture
- Laboratory services on various molecular and biochemical methods
- Consulting on implementing of clinical trials in the area of cell therapies
- Consulting on establishment of a »clean room« system for the purpose of cell culturing

### 1. R&D services in cell culture

Cell cultures can be employed for various reasons. Besides their use in clinical practice (e.g. for treating diseases), they also present a valuable tool for basic research of cell biology. In Educell Ltd. we have extensive experience and knowledge in establishing human cell cultures. Our work covers isolation of cells from the tissues, establishment of cell cultures, and the analysis of cell phenotype. All the procedures of cell cultivating are carried out in clean facilities in compliance with Good Laboratory Practice guidelines. Our main expertise are human cell cultures, however we offer cell culturing of other mammalian species as well.

#### Isolation of cells from the tissues

**In Educell Ltd. stem cells as well as differentiated cells can be obtained from various tissues.**

Our expertise with respect to differentiated cells is isolation of chondrocytes from cartilage tissue and isolation of bone cells from bone tissue.

Adult stem cells have the ability to differentiate in various cell types. For this reason, adult stem cells can serve as valuable tool for cell differentiation studies and furthermore, they have great potential for treating various diseases.

With our technology, adult stem cells can be isolated from the bone marrow or adipose tissue. Subsequently they can be differentiated along chondrogenic, osteogenic and adipogenic lineage.

#### Culturing cells *in vitro*

**In our company we offer various types of cell culturing with the following parameters which you can choose from:**

- Type of the medium (specific supplements)
- Monolayer culture
- Three dimensional culture (hydrogels and ceramics)
- Static culture
- Dynamic culture (Rotating bioreactor)
- Culture in hypoxic conditions (e.g: atmosphere of 2 %O<sub>2</sub>)

*In vitro* conditions importantly influence cells' phenotype. Therefore, the choice of most appropriate culturing parameters is crucial, and depends on the cell type and on the specific aims of the culturing.

## Development of tissue engineered products

**Extensive experience with autologous tissue engineered products serve as a good base for developing custom made tissue engineered products for our customers.**

In Educell, we have extensive experience in preparing autologous, cartilage and bone tissue engineered products for clinical use. More than 200 patients with damaged knee cartilage have been treated with Educell's product ChondroArt™ of three generations, based on patient's autologous chondrocytes. Good clinical results of the treatment with ChondroArt™ led us to develop another chondrocyte based product – UroArt™. This product has been developed for the treatment of vesicoureteral reflux. Again, it has been successfully used in the clinical practice.

For the treatment of extensive long bone defects, we have developed autologous cell based product combined of mesenchymal stem cells from the bone marrow and calcium triphosphate as a scaffold. The results of a pilot clinical trial are encouraging.

## Cryopreservation (and storage) of cell cultures

**We offer development of the cryopreservation procedure (depending on the cell type) and storage of cells.**

Cryopreservation is a procedure which consists of preparation and cooling of cells under controlled conditions to temperatures of liquid nitrogen (-196°C). Our technology enables long term storage of various cell types.

## 2. Laboratory services for molecular and biochemical methods

**To our customers we offer services for the following techniques:**

- **Quantitative PCR**
- **PCR**
- **Detection of the presence of bacterial endotoxines (chromogenic kinetic method)**
- **Test for metabolic activity of cells (MTT)**
- **DNA quantification**
- **Calcium quantification**
- **Glycosaminoglycan quantification**

Molecular and biochemical methods have been established in Educell, in order to assure high quality and safety of our cell based products, as well as for R&D purposes.

## 3. Consulting

### Consulting on establishment of a »clean room« system for the purpose of cell culturing

**As a leading company for the cell therapies in Slovenian market we offer consulting on establishment and maintenance of a clean room system for the purpose of cell culturing.**

In Educell, we have been developing and culturing cell based products for medical use and for research projects since 1997. One of important requirements for our activities is assuring and mastering the clean room system conditions under which cells are being cultured. Since November 2008 Educell is also a registered "Cell and tissue establishment".

### Consulting on implementing of clinical trials in the area of cell therapies

**We offer consulting on implementing clinical trials for cell therapy products.**

Our extensive experience in the field of cell culturing and cell therapies in clinical setting have been successfully adopted in clinical studies. Recently we have successfully completed the pilot clinical study »The role of mesenchymal stem cells for the treatment of long bone defects« which has been carried out by financial support of the Slovenian Ministry of Defense (MORS). Clinical studies are being carried out in compliance with the European Union Tissue and Cells Directives (EUTCD).