



RESEARCH GROUP



PRINCIPAL INVESTIGATOR

doc. RNDr. Irena Koutná, Ph.D.

E-mail: irena.koutna@fnusa.cz

KEY WORDS

Advanced Therapy Medicinal Products, Cell and tissue engineering, GMP-production, Gene therapy

RESEARCH FOCUS

CTEF represents a unit manufacturing advanced therapy medicinal products (ATMPs) including cell therapy and tissue engineered products. Products are manufactured from viable autologous or allogeneic cells and they can also contain non cellular components (chemical/biological compounds, matrices, scaffold etc.). All manufacturing and quality control activities at CTEF are carried out in accordance with the principles of cGMP to provide the authorization for the manufacture and investigation of all medical products within the clinical trials. Environmental Monitoring and Assessment is conducted continuously during the production processes.

The facility provides licensed manufacturing and testing of cGMP grade medicinal products for pre-clinical and clinical trials and is available to academic and private sector scientists, taking care of the project license and authorization process. In cooperation with Masaryk University, CTEF also provides support in the translation of research and development outcomes into a manufacturing setting.

CTEF has ISO 9001 certification (quality management system) and GMP manufacture permit from SÚKL. Specific products: Virus-specific lymphocytes (VSL), peripheral blood mononuclear cells (PBMC), chimeric antigen receptor T-cells (CAR-T cells), human embryonic stem cells (hESC), human induced pluripotent stem cells (hiPSC)

The facility cooperates with many partners, including: Masaryk University, Brno, University Hospital Brno; Olomouc University Hospital; Institute of Hematology and Blood Transfusion, Prague; The Institute of Genetic Medicine, Newcastle, UK; Mayo - Center for Regenerative Medicine, Rochester, USA; Leibniz Research Laboratories for Biotechnology and Artificial Organs, Hannover, Germany

RESEARCH OBJECTIVES

Development of clinical-scale manufacturing processes based on cell and tissue engineering

Development of analytical methods for product characterization and release

GMP manufacturing, quality control and releasing clinical-grade products

Compliance with ISO 9001 and GMP



CLINICAL RESEARCH

TRANSLATIONAL RESEARCH

BASIC RESEARCH

CORE FACILITIES

Development of new solutions for prevention, diagnostics and treatment of cardiovascular, neurological and selected oncological diseases and disorders.

3 clean room units grade A inside grade B, Isolator grade A inside grade C room and multifunctional C grade laboratory

Independent systems for cell expansion:

CliniMACS Prodigy® System; Terumo Quantum® Cell Expansion System

Independent Quality Control Unit

Controlled Cryobank

TOP PUBLICATIONS

0. FARKAS S, SIMARA P, REHAKOVA D, VEVERKOVA L, KOUTNA I. Endothelial Progenitor Cells Produced From Human Pluripotent Stem Cells by a Synergistic Combination of Cytokines, Small Compounds, and Serum-Free Medium. *Front Cell Dev Biol.* 2020 May
0. TESAROVA L, JARESOVA K, SIMARA P, KOUTNA I. Umbilical Cord-Derived Mesenchymal Stem Cells Are Able to Use bFGF Treatment and Represent a Superb Tool for Immunosuppressive Clinical Applications. *Int J Mol Sci.* 2020 Jul 28;21(15):5366
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OTHER SELECTED RESULTS

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STEJSKAL, S., STEPKA, K., TESAROVA, L., STEJSKAL, K., MATEJKOVA, M., SIMARA, P., ZDRAHAL, Z., KOUTNA, I. Cell cycle-dependent changes in H3K56ac in human cells. *Cell Cycle.* 2015, 14(24), 3851-63.

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