

Affiliation: Masaryk University, Faculty of Medicine
Study program: PhD program Biomedical Sciences
Specialization: Cell and Tissue Morphology
Workplace: Department of Histology and Embryology, Faculty of Medicine, MU
Form of study: Full-time

Supervisor: doc. RNDr. Irena Koutná, Ph.D, ikoutna@gmail.com

Title: Polarization of mesenchymal stem cells in the context of immunosuppressive therapies

Brief annotation (max 200 words): Many studies reported that the stimulation of specific Toll-like receptors (TLRs) affects the immune modulating responses of human multipotent mesenchymal stromal cells (hMSCs). Toll-like receptors recognize “danger” signals, and their activation leads to profound cellular and systemic responses that mobilize innate and adaptive host immune cells. The danger signals that trigger TLRs are released following most tissue pathologies. Since danger signals recruit immune cells to sites of injury. hMSCs express several TLRs (e.g., TLR3 and TLR4), and that their migration, invasion, and secretion of immune modulating factors is drastically affected by specific TLR-agonist engagement. The aim of these Ph.D. thesis is developed suitable protocol for GMP condition polarization using stimulation or inhibition of toll like receptors and production of clinical grade population of polarized hMSCs which will be suitable for immunosuppressive therapies.

Requirements:

Requirements to successfully obtain a PhD degree in the Biomedical Sciences PhD program:

- Have at least one first author publication in an international research journal with an impact factor above the median IF in the field or have two first author publications with the IF in Q3. Importantly, the affiliation to the Faculty of Medicine, Masaryk University must be listed.
- Gain a set of minimum credits (240 ECTS in 4-year study period), pass 4 faculty-wide courses + an English language course and 4 field-specific courses.
- Pass the doctoral state exam.
- Take an active part in teaching.
- Participate in the annual PhD conference.
- Present research outcomes at least once at an international conference (poster, presentation).
- Spend at least one month abroad on an internship.

Additional information on the supervisor: <https://www.fnusa-icrc.org/cs/vyzkum/vyzkumne-tymy/translacni-vyzkum/cell-and-tissue-engineering-facility-cgmp/>

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