Naslov projekta: Neuroimmune aspects of mood, anxiety and cognitive effects of leads/drug candidates acting at $GABA_A$ and/or sigma-2 receptors: In vitro/in vivo delineation by nano- and hiPSC-based platforms
***Rukovodilac*:** prof. dr Miroslav Savić (Katedra za farmakologiju)

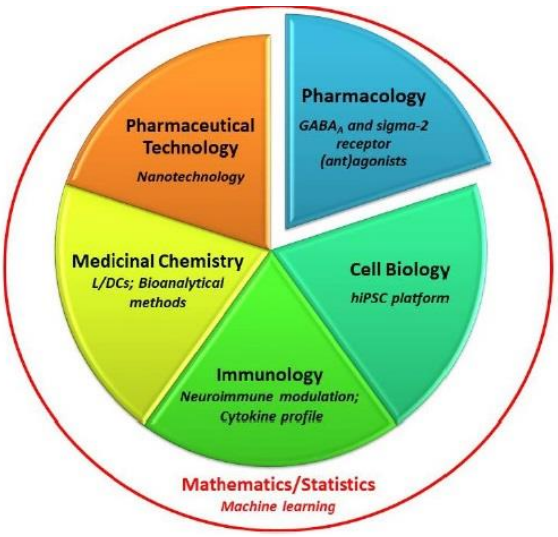
Akronim: NanoCellEmoCog

Logo projekta:

NanoCellEmoCog

***Budžet projekta NanoCellEmoCog:* 276 000 EUR**

Sastav konzorcijuma odnosno projektnog tima ispred Fakulteta:

University of Belgrade-Faculty of Pharmacy	Department of Pharmacology	Prof. Dr Miroslav Savić - *Prinicipal Investigator & WP 3 Coordinator*	
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Apstrakt projekta NanoCellEmoCog:

Mood, anxiety and cognitive symptoms in psychiatry and neurology represent a significant worldwide burden. Available therapeutic options are few and often limited to off-label uses. Due to difficulties in disease modeling and drug delivering to the site of action, as well as gaps in in vitro to in vivo extrapolation, the efforts to elucidate the roles of stress and neuroimmune pathways in both, etiology and therapy of these symptoms are challenging, but may nevertheless result in novel mechanisms of action. Recent preclinical studies provided novel leads/drug candidates with promising mood, anxiety and cognitive effects, the intellectual property rights of which are co-owned by the current project beneficiary. We aim to (1) incorporate the selective ligands of $GABA_A$ and/or sigma-2 receptors, with code names GL-II-73, DK-I-56, MM-I-03 and CW-02-79, together with two reference sigma-2 receptor ligands (siramesine and RHM-1), into the optimized nanoparticles and target their delivery to the human induced pluripotent stem cell (hiPSC)- based tri-culture cell neuroinflammation model, or rat brain, (2) quantify the immunological, morphological and neurochemical markers in immunologically challenged hiPSC-derived neurons, astrocytes and glia cells, and (3) assess their effects on behavior and biological markers in immunologically challenged animals of both sexes subjected to chronic mild unpredictable stress. We assume that the targeted nanodelivery of selected compounds to the brain will improve their pharmacokinetic profile, fortify their beneficial effect on mood, anxiety and cognition, and help delineate the contributing neuroimmune effects presumably arising mainly from microglia. The familiarization with neuroimmune aspects and pharmacokinetic optimization will support the preclinical progress of these compounds and might provide a rationale for designing clinical trials. In the long-run perspective, they might be beneficial especially to the patients whose psychiatric illness is linked with immunological alterations. An additional impact is derived from the potential wide application of the custom toolbox based on a defined set of (pre)formulation and in vitro data, which would enable choosing the optimized formulations for in vivo studies of the centrally active leads/drug candidates.

Shema radnih paketa projekta NanoCellEmoCog: