Karel Jezek, MD PhD   In Pilsen, 2.4.2024
PhD Mentor of Annu Kala, MSc.
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PhD Mentor´s review

Ms. Annu Kala joined our lab in October 2018 after succeeding in an international interview during the spring of the same year. Despite coming from a different field - immunology, she seamlessly adapted to the neurophysiology lab environment comprising manufacturing electrodes, programming and working with rats and mice. Her initial and primary project involved establishing an acute septic shock model to investigate the brain's response to sepsis, as part of a broad Institutional funding initiative focused on infectious diseases and inflammation.

Her first goal was to characterize spectral changes in eeg after induction of generalized inflammation. We decided for the anesthetized model to complement other septic models studied at the Faculty. Using large dose of Lipopolysacharide she identified severe fragmentation of eeg states in her experiments and started to analyze its detailed properties. In a close collaboration with dr. Leemburg, a postdoc in the lab with a strong experience in eeg analysis, she developed significant analytical skills and identified spectral shifts in the septic EEG that could potentially explain the pronounced brain state fragmentation, a hallmark characteristic in patients with severe sepsis. This discovery constituted the main point of her primary scientific publication.

Subsequently, she pursued this research theme further and won a START grant by Charles University to assemble her own student team. Together, they focused on various aspects of alterations in neural coding resulting from the septic condition.

Ms. Kala was involved in numerous side projects, namely on Alzheimer disease model - in collaboration with partners from Masaryk University to explore ways to image the amyloid plaques in the brain, to assess changes in mitochondrial activity related to aging and Alzheimer phenotype, or to characterize neural coding alterations in Alzheimer model both during awake- and sleep-related memory procesing.

It is rather difficult to characterize a person in few words. Annu embodies an abundance of energy and determination, driven by her passion for science, she is always ready to overcome obstacles and learn new things. She is as well a skilled science communicator, as evidenced by her success in the national final of the Famelab competition and her receipt of The Czech Centers Prize. At the same time, she she also exemplifies compassion, selflessness, and constant readiness to assist her colleagues.

Because she had attended all the available obligatory courses, had spent several months of internship at University of Zurich, passed all the planned exams, and delivered her thesis, as a scientific tutor of Annu Kala I kindly request the committee to consider granting her the PhD title.

Karel Jezek

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