FACULTY
OF MEDICINE

Expert Opinion on Doctoral Thesis

Ph.D. Candidate: **Rishikaysh V. Pisal, M.Sc.**

The thesis by its theme well fits into an ever-growing field of stem cell research. Particularly, it focuses on one of its branches, which is reprogramming of somatic cells to pluripotent state. This technology currently is in highly advanced stage when there are commercially available reagents and procedures that can be easily adopted in any laboratory. The thesis of Pisal builds on this fact and uses the reprogramming strategy based on viral infection for production of human induced pluripotent stem cells (hiPSC) from stromal cells isolated from dental pulp. To do so, he decided, based on certain cell features, to reprogram natal rather than adult dental pulp stromal cells. The resulting hiPSC were then shown to possess typical characteristics of pluripotent cells, including expression of pluripotency-associated mRNAs and proteins, and capacity to produce all three embryonal lineages when they were differentiated *in vitro*. There are two more parts of the thesis, one focusing on cell culture quality control, specifically on detection of mycoplasma infection, and the other one on myogenic differentiation of the given line of hiPSC. Collectively, this thesis contains variety of tangible achievements but it also has several serious drawbacks, some of which I will list below in the form of questions to be addressed during the oral defense.

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Taken together, despite my limited enthusiasm, I still may conclude that the thesis brought series of data that have scientific value and as such it may serve as acceptable basis for the defense.

Sincerely yours,

Dr. Aleš Hampl

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