J Tumor Res & Reports
ISSN: 2684-1614
2020
Vol.05 No.3

Investigation of the circadian clock genes in human melanoma cells

Eva Katona
University of Debrecen, Hungary

Abstract

Most of the cell functions show ~24 hour-periodic rhythm which is regulated by a 2-level endogenous rhythm-generator system. The clock machinery is composed of a central neural oscillator located in the brain, and peripheral clock systems found in different cells and tissues, where the expression of circadian clock genes is driven by a highly conserved transcription/translation feedback loop (TTFL).

It is hypothesised that cancer development and/or progression may correlate with the disruption of the circadian homeostasis of the cells. In case of melanoma, little is known about the elements, the function and the role of the biological clock. Recent studies suggest that re-synchronization of the circadian clock with special diet or pharmacological treatments may increase the positive effects of the antitumor therapies through decreasing cancer cell proliferation ability.

Based on the above, the aim of this research is to study the expression profile of the core molecular clock genes (BMAL1/2, CLOCK, CRY1/2, PER2/3, RevErba, RoRa) in WM35 melanoma cells and normal human epidermal melanocytes, as control cells. In addition to clock gene expression profiling, we show the alterations in the clock gene expression pattern upon re-synchronization with different methods i.e. serum shock or caloric restriction.

Our results suggest a differential regulation of the core molecular clock in melanoma cells compared to normal human epidermal melanocytes, which may have key implications in developing novel anti-cancer therapies.

Biography:

Eva Katona is graduated at the University of Debrecen in 2010, as medical biologist. She started her postgradual studies in the field of chondrogenic differentiation paralell with investigation of Ser/Thr phospatesis in human melanoma. In 2018, she started to studying the circadian clock of normal human epidermal pigment cells and melanoma cells, focusing on finding new strategies for resynchronization of the molecular clock of cancer cells.

Speaker Publications:

1. Alagha et al. Cartilage. 2020.A Synchronized Circadian Clock Enhances Early Chondrogenesis.
2. Katona et al. Int J Oncol. 2016.PP2B and ERK1/2 regulate hyaluronan synthesis of HT168 and WM35 human melanoma cell lines.

17th International Conference on Cancer; Barcelona, Spain - June 15-16, 2020.

Abstract Citation:

Eva Katona, Investigation of the circadian clock genes in human melanoma cells, Cancer Research 2020, 17th International Conference on Cancer; Barcelona, Spain - June 15-16, 2020. (https://cancer-research.cancersummit.org/abstract/2020/investigation-of-the-circadian-clock-genes-in-human-melanoma-cells)