51. THE TELOMERASE ON DUTY IN ANTIAGING TECHNIQUES: MYTHS AND FACTS

Author: Teut Alexandrina

Scientific adviser: Elina Pelin, MD, Associate Professor, Department of Histology, Cytology and Embryology, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. The contemporary medicine has made the lengthening the human's life a reality. On the other hand, the age-linked problems are one of the cornerstone theses of modern biology. Nowadays, the telomere commitment in aging is demonstrated and the anti-aging theories are based on the human's telomerase studying and furthermore on human's genetics rejuvenation.

Aim of study. To research on the telomerase impact on human's aging.

Methods and materials. We have selected and studied some scientific articles based on the next keywords: telomerase, telomere, and aging.

Results. The telomeres are the regions found on the chromosome extremities, involved in the preserving of the genetic material during the dividing process. Each cell division makes the telomeres to short themselves, this turning the genetic material unstable, thus giving the cell the premise to stop dividing. The scientists made a huge effort to decode the telomerase structure, knowing its role in telomere restoring. There is a high amount of the telomerase in the STEM cells, sex cells and in the tumoral ones, giving them the possibility to divide much more as compared to the somatic cells, in which telomerase is absent. A number of studies have shown the telomerase importance by injecting the telomerase gene in skin and vascular endothelium, and activating the telomerase. It helped to keep the same length of chromosomes among divisions. This made the scientists to increase the cell lifespan. Subsequently, there is a set of restrictions in the usage of telomerase, because its involvement leads to the appearance of cancer cells. A solution would be to activate the telomerase parallel to oncosupresor activation (like p53, p16, p14), resulting in lengthening of cells life length.

Conclusion. The detailed description of telomerase and its mechanisms will bring us to the elaboration of medications having the capacity to slow down or even stop aging, without inflicting the cancer apparition. It's necessary to gain more information about the risks associated with telomerase activity.