Olkhowska S.V.

# USING OF STEM CELLS IN MEDICINE

Kharkiv National Medical University, Department of Foreign Languages, Kharkiv, Ukraine
Scientific adviser: Timonova G.V.

Nowadays, when innovative technologies develop, the humanity struggles actively against many harmful diseases during the whole period of its existence. Today medicine is in the period of its dynamic development. Modern technologies propose a wide field for the enhancement of opportunities of medicine. A lot of things that recently have been unfeasible now are possible and are actively used in practice for solving problems. For instance, artificial organs and nanorobots have been applied in medicine. A lot of problems are fought with applying modern technologies. Using stem cells is also very perspective sphere for development, many problems may be solved with their help. That is why the topicality of this research work is caused especially by this fact. The aim was to review the directions of the use of stem cells.

Human organism contains billions of different cells. Stem cells are the unique universal type of cells, which can create any other type from themselves. It means that stem cells piece out the lost parts of damaged cells. It is interesting to know that these cells can be extracted from any type of tissue and used in any required zone. Now the method of using stem cells is widely applied in transplantation and oncology; presently scientists work very intensively on other ways of their usage. For example, they offer to use stem cells in case of myocardial infarction by introducing them into the affected organ (cardiac muscle) in order to replace dead cells. This technique may be used in different inflammatory processes. The most prospective area for the use of stem cells is the treatment of diseases of CNS. Neurons are cells composing the nervous system, if they are damaged, it is very hard to renew them and their complete restoration is impossible, therefore, functions of the whole system are not carried out normally. Scientists have experimentally improved the fact that when stem cells are introduced into the spinal cord, the regeneration of lost functions is observed, for

instance, in case of multiple sclerosis, stroke or paralysis. It is even possible to facilitate largely infantile cerebral paralysis (the disease considered to be incurable). It occurs due to the potential of stem cells to make a lot of new healthy cells. However, nowadays the use of stem cells is widely spread in the transplantation, it still be very perspective in future. Scientists work on the growth of separate elements of tissues, organs and even whole organs in an artificial medium or directly in the human organism.

As a result we can say that the use of stem cells is possible in every branch of medicine. The discovery of stem cells has become a major breakthrough in medicine and biology; consequently, people have got a lot of new possibilities. Treatment of incurable diseases has become easier. Therefore, we need to continue working in this direction, because it is the future of world medicine.