

## DESCRIPTION FOR THE GENERAL PUBLIC

Currently, neoplastic diseases constitute an issue and a challenge for contemporary medicine. Although there has been a huge progress in oncology, there are still many difficulties in the effective treatment of cancers and also prevention of the occurrence of the side effect of oncological therapies. One of the most serious problems in patients after chemo- and radiotherapy is development of skin lesions and chronic wounds. Conventional methods of the treatment of wounds and skin loss in these patients still do not give satisfactory outcomes. One of the potential methods of treatment of these lesions is the application of ASCs which possess multiple biological activities and their regenerative properties have been proved in a variety of clinical trials. Fat tissue removed during surgical procedures, for many years was treated as a medical waste with no clinical significance. However, the experience of recent years has shown that it is a rich source of stem cells. So far, there is no sufficient data to show whether these cells can also be effective in the wound treatment of the patients who have undergone radio- and chemotherapy. Moreover, it is difficult to estimate potential mechanism of ASC action on the cells derived from oncological patients. The aim of the presented project is to assess *in vitro* the influence of ASCs on the regenerative activities of the skin cells isolated from oncological patients. Biological material (skin and fat tissue) will be obtained during oncological surgeries (clinical waste). The study group will be composed of patients with colon or stomach cancer divided into two groups: patients subjected to chemotherapy and control patients without any oncological treatment. In the project, we plan to use advanced research methods to assess the effect of ASC on skin cells (cell cultures, histochemical, molecular and immunological studies). The project may increase our knowledge on the biology of ASCs as well as on the effect of oncological treatment on skin cells. Furthermore, the study may propose new therapeutic possibilities in the treatment of oncological patients with various complications after receiving chemotherapy. Thanks to interdisciplinary cooperation of physicians and scientists of many specialties, the project may also bring new, groundbreaking information on the interaction of adipose-derived stem cells and skin cells.