Gastrointestinal cancers are one of the most frequently diagnosed cancers. The pathogenesis of these diseases is complex, and treatment involves various therapeutic approaches, including surgical intervention, chemotherapy and radiotherapy. In the fight against cancer, a particularly interesting approach is the use of immunotherapy which can enhance or alter the function of immune cells and/or may affect other mechanisms of immune response. Our preliminary studies indicated that specific modification of neutrophils leads to their immune response reprogramming. Neutrophils with this specific modification are characterized by pro-inflammatory and anti-tumorigenic phenotype when compared to unmodified neutrophils. As a part of the planned project, *in vitro* analysis will be performed which will allow to characterize this specific modification of neutrophils. Moreover, studies employing murine gastrointestinal cancer models and adoptive transfer of neutrophils will allow to determine usage potential of neutrophils with specific modification for the treatment of gastrointestinal cancers. The planned studies will allow a better understanding of the pathogenesis of gastrointestinal cancers and in the future may contribute to the development of new, more effective therapies.