IBD is a group of inflammatory diseases of the digestive tract; the number of patients with IBD is increasing, especially in developing countries, which is associated with, among other things, the so-called "Westernization" of lifestyles, as well as decreasing food quality or air pollution. IBD is unfortunately a chronic, recurrent disease; their treatment therefore poses many difficulties, especially in relation to the durability of the achieved remission.

New factors important for the development of IBD are discovered every day, as well as new possibilities of their treatment. It is beginning to be noticed that not only inflammatory processes are responsible for the appearance of disease symptoms, but also the process of cell aging. According to our research hypothesis, the use of compounds modulating the aging process may prove to be a breakthrough in the treatment of IBD, because they may turn out to be effective anti-inflammatory drugs.

During the project, we will examine several selected senomodulators of natural origin in terms of their anti-inflammatory effect in cell models of the development of the aging process and inflammation. After a thorough characterization of the action of selected senomodulators, we plan to obtain their nanoformulations and test the preparations obtained in this way also in vitro. Then we will select the nanoformulation with the most favorable profile (anti-inflammatory effect) and examine their properties in an animal model of IBD. This will allow us to identify nanoformulations that could become an effective drug or supplement in the therapy of IBD in the future. The project is interdisciplinary in nature and will be implemented multi-center, with the main participation of scientists from the Medical University of Lodz and the Krakow University of Technology, and substantive support from researchers from the University of Zaragoza (Spain).