

Multiple myeloma (cancer of bone marrow) and acute myeloid leukaemia are common haematologic malignancies. Each year over thousand people in Poland die due to complications resulting from them and over thousand new cases are reported. In recent years, a protein called basigin has been reported to affect progression of multiple myeloma. Basigin exerts this pro-myeloma function by transporting lactates, toxic molecules heavily produced by fast-proliferating cancer cells, out of the cell. It was also found recently that basigin is involved in response to treatment with immunomodulatory drugs, which are commonly employed in multiple myeloma treatment.

The current study aims to fill in some of the holes in our knowledge about the roles of basigin in multiple myeloma and acute myeloid leukaemia. The study aims to realise this through following scientific goals. The first is to study the influence of levels of basigin on survival and other clinical parameters in multiple myeloma and acute myeloid leukaemia. Another goal will be to investigate a potential role of basigin in creation of new blood vessels (angiogenesis) in the two diseases. The study would also include an analysis of influence of selected microRNA – small molecules that can affect production of various proteins.

The studies will be conducted on peripheral blood and bone marrow samples from patients with their consent, as well as on commercially available cell lines. Levels of basigin will be measured and analysed with respect to clinical history of multiple myeloma and acute myeloid leukaemia patients to assess its clinical and prognostic importance. Levels of basigin and a molecule involved in creation of new vessels that basigin is reported to elevate (VEGF) will be measured to assess association between basigin and angiogenesis. Profile of selected microRNA will be analysed to investigate their potential relationship with risk and course of disease.

Basigin plays a major role in pathogenesis of multiple myeloma and might also affect acute myeloid leukaemia. This project will increase knowledge on basigin production in cancer cells, underlying its importance in the development of the diseases.