The interaction between tumor cells and components of its microenvironment is bidirectional. Signals derived from tumor cells regulate functions of non-tumor cells gathering in the microenvironment. Conversely, constituents of microenvironment change tumor behavior and support its growth, drug resistance and metastasis. We have recently showed that tumor-derived protein, called osteopontin, contributes to tumor progression by attracting brain resident microglia and macrophages (GAMs) and shaping immune response in glioblastomas – the most malignat brain tumors. This 'bad education" of GAMs and other innate immune cells to tumor-supporting cells is not permanent and could be reversed bringing back antitumor immunity. Recent data suggest that high amounts of osteopontin detected in the tumors may be derived not only from the tumor cells but also from the host cells. Therefore, the main objective of the current project is to analyse the antitumor and immunomodulatory potency of systemic eleimination of osteopontin either by genetic tools or using a peptide, which will block osteopontin action. We will deliver siRNA/shRNA molecules, which prevent high production of osteopontin, using innovative nanocarriers, called dendrimers, which exhibit superb effectivity in various cancer models. Alternatively, we will administer systemically a synthetic peptide, which blocked the action of glioma cells on microglia *in vitro.* We plan to characterize the responses to the treatments in two experimental glioma models. Prior to this we will assess the eligibility of these tools for *in vivo* administration in a series of *in vitro* assays. We will measure tumor growth and evaluate immune cells responce. The results of this project will broaden our understanding of glioma progression. Once established, these osteopontin eliminating/interfering tools with gained knowledge about the best routes of their administration can be easily translated into new therapy of GBM patients. The expression of osteopontin is highly upregulated in many malignant tumors (i.e. breast and colon cancers), therefore our data will shed light on general tumor pathobiology and immune evasion, and propose new ways of resetting antitumor immunity.