Short Peptide Inhibitors of MT1-MMP

These short peptide inhibitors target the region of MT1-MMP responsible for cell migration and invasion and are potent and specific inhibitors of MT1-MMP induced cell migration and invasion.

Background:
Metastasis is responsible for 90% of treatment failure among cancer patients. Hence, there is a pressing need for the development of novel treatment strategies to limit cancer metastasis, to prolong survival, and to improve quality of life of patients suffering from cancers. An increasing number of studies implicate MT1 MMP as a master regulator of cell migration and cancer cell invasion, which are critical activites for cancer cell metastasis. Thus, novel anticancer therapeutics that control tumor progression may be developed through interference with MT1 MMP function.

Technology Description:
Dr. Jian Cao, Research Associate Professor in the Department of Medicine at the State University of New York at Stony Brook, has identified a region of MT1 MMP that is critical for the cancer cell invasion and metastasis. Further, his lab identified small peptides that target this region and inhibit MT1-MMP function. Cellular assays confirm that the peptides inhibit MT1 MMP induced cell migration. This inhibition is specific, as the peptide do not inhibit cell migration induced by other MMPs such as MMP9. Current work in Dr. Cao’s lab is focused on testing these peptides in several in vivo models of disease.

Patents and Publications:
- Patent Pending
- Publication: Development of Specific Inhibitory Peptides Targeting MT1-MMP-mediated Cancer Cell Invasion. Submitted

Advantages:
- Specifically inhibits MT1-MMP induced cell migration
- Peptides are less than 8 amino acids long and resistant to proteolysis

Applications:
- Treatment of patients suffering from cancer, autoimmune disease, inflammation and other disorders associated with unwanted cell migration
- Imaging and diagnostics

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