Membrane type 1 metalloprotease (MT1-MMP) is a protein that plays an important role in the regulation of the extracellular matrix in between cells. Importantly, MT1-MMP is increased in angiogenesis and metastasis in cancer so strategies to inhibit this protein are believed to be a promising therapeutic approach for cancer treatment. This technology describes and characterizes peptide fragments of the Anthrax Toxin Extracellular Domain which can inhibit MT1-MMP and thus potentially hinder disease progression. Since Anthrax Toxin Extracellular Domains are endogenous binders of MT1-MMP, this therapeutic option may be more specific and well tolerated than synthetic drugs.

Currently available metalloprotease (MMP) inhibitors target the catalytic site of MMP, which increases off-target effects due to the conserved catalytic site amongst many MMPs and their importance in cellular signaling cascades. The peptide fragments described in this technology do not target other MMPs, allowing for use of lower concentrations of the therapeutic to achieve the same amount of MT1-MMP inhibition compared current MMP inhibitors. Depending on the situation, activation of MMPs is also possible.

The efficacy of this technology was verified in mouse models where anthrax toxin receptor 2 was knocked out.

**Lead Inventor:**

Jan Kitajewski, Ph.D.

**Applications:**

- Cancer therapeutic to inhibit angiogenesis
- Cancer therapeutic to inhibit metastasis of cancer
• Therapeutic to inhibit MMP and inhibit fibrotic buildup

**Advantages:**

• Specificity to MT1-MMP
• Less potential of off-target effects due to selective targeting of MT1-MMP

**Patent information:**


Tech Ventures Reference: IR CU12268

**Related Publications:**


**Inventors**

Jan Kitajewski