Molecular Imaging of invading glioma cells using a peptide-based probe for the cell surface receptor PTPmu

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Technology description

The technology provides a therapeutic composition that inhibits the function of fragments of PTPmu generated by proteolytic cleavage and can include both intracellular and extracellular fragments. One approach prevents function of the intracellular catalytically active phosphatase fragments, which promote migration of tumor cells. Further, the technology provides a novel molecular diagnostic for the detection and/or localization of tumors. The probes detect cleaved extracellular fragments of PTPmu expressed by the tumor cells. The probes can also complex to the extracellular fragment, and may optionally include a detectable moiety to provide diagnostic imaging capability, for example. Finally, Dr. Brady-Kalnay's lab is proposing to combine the use of the two types of agents by using the extracellular probes as a targeting agent on the surface of a nanoparticle to deliver the therapeutic to tumor cells. In addition, the nanoparticles will contain an imaging agent. The probes crossed the compromised blood-brain barrier and bound to both the main tumor mass and the tumor microenvironment within minutes. Importantly, the probes are novel tumor molecular imaging tools for multiple tumor types.

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