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A Dock Derived Compound against Laminin Receptor (37 LR) for Anti-tumor Treatment

A novel compound targeting the laminin receptor shows promise as a lead drug candidate for treating tumor growth and inhibiting cancer development.

Laminin receptor (37/67 LR) is a membrane protein when over-expressed can promote metastasis of cancer cells. This is due to the ability of 37/67 LR to promote blood vessel formation in tumors in a process called angiogenesis. Pigment epithelium-derived factor (PEDF) is an endogenous protein that can bind to 37/67 LR to inhibit angiogenesis. PEDF is a viable therapy for cancer patients but due to it being an endogenous protein there are enzymes present in the body that degrade it. As well as, peptide formulation for drug delivery is difficult due to protein stability.

Researchers at Purdue University have developed a small molecule that elicits a similar response as PEDF when it binds to 37/67 LR. Upon binding to 37/67 LR, the hit compound, C3, modulated an anti-angiogenesis pathway that inhibited prostate cancer cell viability, proliferation, and migration. Due to C3 being a small molecule, it did not bind to PEDF proteolytic enzymes, thus, bypassing PEDF degradation process which could result in longer duration of action. C3 is a promising hit compound which has potential for future development as a lead compound for prostate cancer treatment.

Advantages:

-Anti-tumor

-Anti-angiogenesis

-Bypass proteolytic degradation

Potential Applications:

-Prostate cancer therapy

-Chemotherapy

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