Inhibiting Proliferation and Metastasis of Cancer Cells

Methods and Compounds

Invention
This discovery provides methods and compounds for decreasing the expression of LIMK1 and AurKA in cancer cells.

Background
Metastasis of tumor cells contributes to about 90% of cancer-related deaths. Proteins that regulate cell motility are attractive targets for cancer therapy because they can also play key roles in cell survival, proliferation, and migration. Lim kinase 1 (LIMK1) is a protein that is involved in cell motility and is frequently overexpressed in highly aggressive and metastatic cancer cells. The current discovery encompasses compounds for the inhibition of LIMK1 expression. Inhibiting LIMK1 with UCF's proprietary compounds reduces the growth, proliferation, and invasiveness of prostate cancer cells. Additionally, these compounds can be used with Aurora A kinase (AurKA) inhibitors in combinatorial cancer therapy. This combination allows for the effective use of each inhibitor at lower dosages, minimizing the toxicities commonly associated with cancer treatments.

Applications
The current discovery can be used for the development of a) drugs for treating or preventing the proliferation and metastasis of cancer cells and b) markers for cancer detection.

Advantages
• Ease of synthesis
• Combinatorial use of LIMK1 inhibitors and AurKA inhibitors reduces toxicity

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Selected References