TECHNOLOGY

Inhibitors of Cell Migration and Shape Changes by Inhibiting Cortactin and HS-1 Mediated Actin Polymerization

OVERVIEW

The present invention is a novel approach to suppress metastasis by targeting cortactin (or HS-1), an actin - associated protein. Cortactin is overexpressed in breast cancer and head and neck carcinomas where it plays a major role in tumor progression by promoting metastasis. Preventing binding of cortactin (or HS-1) to Arp2/3 blocks actin polymerization and depresses tumor metastasis. Compounds that interfere with this interaction have therapeutic and commercial potential as anti-cancer drugs. In addition, cortactin inhibitors are promising drug candidates for wound healing, osteoporosis, Alzheimer's disease, angiogenesis, and thrombosis.

APPLICATIONS

-The present technology has an important clinical utility for head and neck carcinomas as well as breast cancer. -The same approach can be used for treating some other malignant tumors. -The approach can be beneficial in other pathological processes such as osteoporosis, thrombosis, hypertension and atherosclerosis.

ADVANTAGES

Promises to overcome the limitations of existing treatments for head and neck cancer. Novel therapeutic approach for diseases that are intimately associated with cytoskeletal changes and/or invasion.

STAGE OF DEVELOPMENT

-Reduced tumor metastasis with cortactin mutants was demonstrated in a mouse model of bone metastasis. -Target sequence for inhibiting cortactin function has been identified.

R&D REQUIRED

Human testing required.

LICENSING POTENTIAL

UM seeks to develop and commercialize via an exclusive or non-exclusive license agreement and/or sponsored research with a company active in the area.

CONTACT INFO

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Additional Information

INSTITUTION

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PATENT STATUS

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CATEGORIES

- Therapeutics
- Small molecules

INVESTIGATOR(S)

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EXTERNAL RESOURCES

- Aberrant expression of cortactin and fascin are effective markers for pathogenesis, invasion, metastasis and prognosis...
- The coiled-coil domain is required for HS1 to bind to F-actin and activate Arp2/3 complex.
- Cortactin potentiates bone metastasis of breast cancer cells.

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