TECHNOLOGY

Inhibitors of S100 Proteins for the Treatment of Cancer and Other Diseases Involving Uncontrolled Cell Growth via an S100-Dependent Pathway

OVERVIEW

Small molecules have been identified, using rational drug design, that bind to a site on S100 proteins, rendering S100 incapable of inactivating p53 tumor suppressor protein. Inhibitors of S100 thus restore tumor suppressor activity of the p53 protein by inhibiting the S100-p53 interaction. Inhibitors are specific to different members of the S100 protein family that are present in different tissues.

APPLICATIONS

Treatment of numerous cancers in a tissue-specific manner.
Test kit to screen for new drugs.
Test kit for diagnosis of cancers, e.g. melanoma.

ADVANTAGES

-Inhibitors target a regulatory pathway that links, for the first time, p53 tumor suppressor biology to receptor mediated signal transduction via intracellular calcium levels.
-S100 protein levels are known to be abnormally high in many cancers, as well as in other diseases involving uncontrolled cell growth, such as Alzheimer's disease.
-Inhibitors allow p53 to function optimally, controlling cell growth by activating apoptosis.

STAGE OF DEVELOPMENT

Lead compounds shown to slow growth of malignant melanoma primary cell lines. Clinical trials are currently underway.

R&D REQUIRED

Lead compound optimization via structure-based drug design, animal and toxicity testing.

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

U.S. Patent 8,053,477, issued November 8, 2011, titled "Inhibitors of the S100-p53 Protein-Protein Interaction and Method of Inhibiting Cancer Employing the Same"

CATEGORIES

- Diagnostics
- Therapeutics
- Small molecules

INVESTIGATOR(S)

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EXTERNAL RESOURCES

- Design of Inhibitors for S100B.
- Solution structure of zinc- and calcium-bound rat S100B as determined by nuclear magnetic resonance spectroscopy.
- Identification and characterization of small molecule inhibitors of the calcium-dependent S100B-p53 tumor suppressor interaction
- Inhibiting S100B restores p53 levels in primary malignant melanoma cancer cells.

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