

Novel small molecule inhibitors as treatment for epithelial cell cancers

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Technology description

Executive Summary:

We have developed novel small molecule inhibitors that are highly effective in destroying cancer cells in lung, breast, and ovarian cancer cell lines and may be useful in treating other cancers implicated in the Runx1 pathway. Functional studies in 3D organotypic culture have shown that these inhibitors are extremely potent in blocking the growth of and inducing the death of cancer cell lines. These novel small molecules are specific and highly effective inhibitors of Runx1 activity that act by blocking the interaction of the transcription factor core binding factor and Runx1. In vitro studies have shown high levels of cytotoxicity in cancer cell lines in the presence of these inhibitors compared to normal cell lines. These compounds have been shown to be orally bioavailable and in-vivo studies investigating their use are underway. Core binding factor transcription factors play an essential role in cellular differentiation. Many cancers present with high expression levels of core binding factor associated proteins, including Runx1. Blocking the interaction of core binding factor and Runx1 has been recently implicated as a novel approach to treating cancers. Transcription factor inhibition represents a novel and highly effective approach to cancer treatment.

Advantages

Specific and potent inhibitors of core binding factor-/Runx1 interaction as cancer therapeutic

Novel approach to cancer treatment

Application in multiple types of cancers

Institution

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