Cancer treatment for Tumor Cells Using RSL3

Technology #m10-018

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STV Reference: IR M10-018 & M06-044

Drug candidate for cancer treatment is selective for cancer cells:
Many anti-cancer drugs currently in the market come with significant side effects to patients because they are often not particularly selective for tumor cells, and can cause unwanted damage or death to normal cells. As a result, molecular targeted cancer therapeutics directed at inhibiting specific oncogenic proteins or pathways represent a promising approach to cancer drug discovery. One limitation of this approach is that some oncogenic proteins are not readily amenable to inhibition by a small molecule drug. For instance, the RAS oncoproteins are implicated in numerous human cancers, but have been difficult to target effectively with small molecules. Therefore, identifying oncogene-selective lethal compounds that kill tumor cells only in the presence of specific oncoproteins presents a viable alternative. Such compounds may target other novel proteins in oncoproteins-linked signaling networks.

Cancer treatment uses RAS-selective-lethal compound to induce rapid cell death in tumors:
This technology identifies the active stereoisomer of a RAS-selective-lethal compound capable of inducing rapid and nonapoptotic cell death in oncogenic RAS containing tumorigenic cells. It is shown that the active stereoisomer of RSL3 processes selective lethality towards tumor cell lines containing oncogenic HRAS versus isogenic cell lines lacking mutant RAS. This finding provides a potential new drug candidate for current cancer therapies.

Applications:
• Development of new genotype-selective anti-tumor drugs directed at mutant-RAS expressing tumor cells
• New methods to identify potential therapeutic targets within the cell

Advantages:
• A novel tumor cell killing mechanism targeting the RAS oncogenic pathway, which is involved in a variety of cancers
• Identified compound is highly selective and extremely potent for oncogenic-RAS-expressing tumor cells
• Minimal in vivo toxicity due to tumor cell specificity and low doses required


Licensing Status: Available for Licensing and Sponsored Research Support

Patent No. 8,546,421
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