Cyclic Phosphopeptide Inhibitors of Protein Phosphatase 2C Delta, Wip1

Published date: Feb. 1, 2012

Technology description

This technology involves the development of specific peptides that can be used as anti-cancer agents, particularly as promoters of apoptosis. The inventors have modified the natural substrate of the Wip1 protein phosphatase in order to produce the inhibitors, allowing for specific and efficient inhibition of Wip1. These peptides represent the first Wip1 peptide inhibitors. The inhibitors can be combined with other pro-apoptosis therapeutics to improve patient survival, providing an advantage to previous pro-apoptosis approaches.

Wip1 (PP2Cdelta or PPM1D) is a protein phosphatase that negatively regulates cell- cycle arrest and apoptosis by preventing p53-mediated cell-cycle arrest and apoptosis. Wip1 is overexpressed in several human cancers, including breast cancer, ovarian clear cell adenocarcinoma and neuroblastoma, suggesting it may play an important role in oncogenesis. Inhibiting Wip1 may be a necessary step for inducing apopotsis and prohibiting tumor growth, accentuating the need for Wip1-directed therapies. Because these peptide inhibitors are the first specific Wip1 inhibitors, they represent the first opportunity to pursue this therapeutic strategy.

Application area

Applicable as anti-cancer therapeutics for a wide variety of tumors, including breast cancer, ovarian cancer, and neuroblastomas.
Inhibitors can also be combined with other cancer therapeutics.

Advantages

Inhibitors are designed based on strucural similarity to the native substrate, providing a high degree of specificity to the target.
First inhibitors directed to Wip1 as a target for cancer therapy.
Cancer is the second leading cause of death in the United States, with approximately 600,000 cancer-related deaths occurring in 2006 alone. Wip1 inhibitors may provide a social benefit by reducing that number or improving the quality/length of patient life. Furthermore, the cancer therapeutic market is

expected to reach $27 billion by 2009. Because these molecules are the first inhibitors of Wip1, there is an opportunity to occupy a significant niche in that predicted market.

Institution

NIH - National Institutes of Health

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com