



Office of Technology Management

Synergistic Combinations between Gamma-Secretase Inhibitors and Chemotherapeutic Drugs Including Proteasome Inhibitors

Technology Reference

CX063, CX070, CX071

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Field

Cancer

Key Words

Cancer treatment

Cancer cell growth inhibition

Cancer drug combinations

Notch inhibitors

Gamma-secretase inhibitors

License Status

Seeking Partners

Patent Status

Provisional Patent Application filed

Overview

Chemotherapy, as the most effective treatment of cancer, may be given as a single drug or a combination of drugs. Combinations have been developed for several reasons: different drugs attack the cancer cells in different ways; some drugs may make other drugs more potent; combinations help to avoid the problem of cancer cells becoming "immune" or resistant to a certain drug; for many kinds of cancer, a combination of drugs (each one of which is effective in attacking that kind of cancer) provides more effective cancer-kill with fewer harmful effects on healthy tissues.

Although progress has been made in the discovery and development of new drugs or drug combinations that are at least partially effective against certain types of cancer, there is an ongoing need in the art for improved methods of treating cancer and of discovering useful combinations.

Technical Summary

The UIC researchers have discovered that Notch inhibitors such as gamma secretase inhibitors or Notch siRNA act synergistically with other chemotherapeutic agents to inhibit cancer cell growth, including proteasome inhibitors, mitotic poison, DNA-damaging drugs, and AKT inhibitors.

Notch inhibitors, including Notch siRNA, small peptide gamma secretase inhibitors, and non-peptide gamma secretase inhibitors, were found to work synergistically with the DNA damaging agent cisplatin, AKT inhibitor, the proteasome inhibitor MG132, or the mitotic poison Paclitaxel to inhibit the growth of or promote the death of cancer cells.

Benefits

- Inhibit growth of cancer cells
- Destroy cancer cells

Areas of Application

- Cervical cancer
- Breast cancer
- Other melanomas
- Carcinomas of the head and neck,
- Prostate cancer
- Osteosarcoma
- Multiple myeloma
- Ovarian cancer
- Pancreatic cancer
- Colon cancer
- Acute lymphoblastic leukemia
- Endometrial cancer
- Malignant mesothelioma
- Renal cancer
- Hodgkin lymphoma
- Anaplastic non-Hodgkin lymphoma
- Acute myeloblastic leukemia
- Chronic lymphoid leukemia
- Gliomas
- Medulloblastomas
- Neuroblastomas