

Novel, Highly Potent Small-Molecule Compounds for Treatment of Cancer

Category

Technology: Small molecule cancer therapeutic

Developed: 2009

Technology Overview

Flurbiprofen and silylalkoxyaryl amino acid compounds that are effective in treating a variety of cancer cells

IP Status

- ▶ Patent Issued
- ▶ Available for Exclusive or Non-Exclusive Licensing

Value Proposition

- ▶ Effective treatment on a wide variety of cancer cells

Market Attractions

- ▶ Global cancer therapeutics market value at \$114 billion with a CAGR of 7.7%

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Overview

A group of University of Colorado researchers led by Lajos Gera and Robert Hodges has developed two sets of compounds - flurbiprofen analogs and silylalkoxyaryl amino acid analog compounds - that have proven to be effective against a wide variety of cancer cell lines associated with:

- Small-cell and non-small-cell lung carcinomas
- Head and neck cancers and brain cancer
- Pancreatic cancer
- Prostate cancer
- Colon cancer
- Leukemia
- Melanoma
- Ovarian cancer
- Breast cancer
- Renal Cancer

Both sets of compounds were screened using the NCI-60 cell lines, a panel of 60 diverse human cancer cell lines used by National Cancer Institute to screen potential new cancer therapies.

Flurbiprofen Analogs

The group has developed flurbiprofen analog compounds effective for the treatment of lung, pancreatic and head and neck cancers. The ability of these compounds to inhibit cancer cell growth and survival in a variety of cancer lines (lung, head and neck, pancreatic, brain and colon cancers, and melanoma) was examined in a standard MTT assay for cell viability; additionally, the efficacy of the treatment method was examined for both lung carcinoma-cell tumors and pancreatic-cell tumors implanted in athymic mice (see full data in the patent application).

Silylalkoxyaryl Compounds

Sila-substitution (C/Si exchange) of existing drugs is relatively recent approach in the search for drug candidates. The introduction of a silicon atom within a known drug molecule can lead to a significant pharmacological benefit over their carbon counterparts. The CU research group designed, developed and synthesized a new generation of the anti-cancer small molecules described above by introducing a silicon atom at the strategic point of the small molecules. The resulting highly potent silicon-containing anti-cancer compounds were found to be effective against lung (esp. non-small cell lung), head and neck, melanoma, pancreatic, bone, brain (esp. neuroblastoma), leukemia, colon, ovarian, renal, prostate, and breast cancer cells.

Key Documents

Flurbiprofen Analogs and Methods of Use in Treating Cancer. U.S. 8,575,170 issued Nov. 5, 2013.

Silylalkoxyaryl Compounds And Methods For Treating Cancer. PCT filed Jul 22, 2014.

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