A novel chemotherapy drug with reduced patient side-effects

Technology #20180103

A novel anti-cancer compound that inhibits translation and induces p53 in a DNA-damage independent manner to cause cell cycle arrest and apoptosis.

An alternative to cancer drugs that cause cancer

Cancer is a leading cause of death worldwide, as such research efforts abound to develop improved therapeutic treatment options. Chemotherapeutic drugs often work through causing DNA damage in cancer cells to elicit anti-tumor responses and cell death. Unfortunately, this DNA damage also occurs in healthy cells, leading to serious side effects and increasing the risk of future cancer. Researchers at the University of Minnesota have developed a small molecule (4Ei-10), that achieves its anti-cancer effects in two ways: 1) blocking cell proliferation through inhibiting translation of new proteins, and 2) inducing cell cycle arrest and apoptosis through induction of the potent anti-cancer protein, p53. Unlike current chemotherapeutic drugs that upregulate p53, 4Ei-10 does so without causing DNA damage, likely circumventing both burdensome side-effects and the risk of developing new cancer. The dual mode of action of 4Ei-10 has the potential to act

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as a “double-edged sword” against particularly aggressive cancers, and could replace or reduce the dosages of traditional, problematic chemotherapeutic drugs.

Phase of Development
In vitro assessment. 4Ei-10 has been tested on a variety of cancer cells including neuroblastoma, pediatric glioma, breast cancer and prostate cancer cells showing it inhibits proliferation and increases apoptosis and cell cycle arrest.

Key Benefits & Differentiators

- **Exerts two anti-cancer effects simultaneously:** 4Ei-10 molecule both inhibits proliferation (through blocking cap-dependent protein translation) and induces cell-cycle arrest and apoptosis (through upregulation of p53).
- **Minimizes side-effects and risk of future cancers developing:** Unlike most chemotherapy compounds, 4Ei-10 works without causing DNA-damage.
- **Effective against a wide variety of cancers:** As p53 has been shown to combat many cancers, 4Ei-10 has exhibited effectiveness against a variety of cancer cell lines in vitro.

Applications

- Use alone or in combination with other drugs for treatment of cancers
- Research on cap-dependent translation
- Research on p53 regulation

Ready for Licensing

This technology is now available for license! The University is excited to partner with industry to see this innovation reach its potential. Please contact Kenneth Karanja to share your business’ needs and your licensing interests in this technology. The license is for the sale, manufacture or use of products claimed by the patents.

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