Use of Cucurbitacins and Withanolides for the Treatment of Cancer

Summary (1024-character limit)

The National Cancer Institute's Laboratory of Experimental Immunology, Cancer Inflammation Program, seeks parties interested in collaborative research to co-develop, evaluate, or commercialize the use of certain cucurbatacins or withanolides in combination with pro-apoptotic agonists of TRAIL death receptors for cancer therapy.

NIH Reference Number

E-050-2010

Product Type

- Therapeutics

Keywords

- mapatumamab
- TRAIL
- immunotherapy
- cucurbitacin
- withanolide

Collaboration Opportunity

This invention is available for licensing.

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Description of Technology

Certain members of the cucurbitacin and Withanolide family have been identified that can sensitize some tumor cell lines to cell death (apoptosis) on subsequent exposure of the cells to pro-apoptotic receptor agonists (PARAS) of the TRAIL "death receptors". These PARAS include TRAIL itself, and agonist antibodies to two of its receptors death receptor-4 (DR4 or TRAIL-R1) and death receptor 5 (DR5, TRAIL-R2).

The protein TRAIL has a very interesting characteristic that it can preferentially cause death of cancer cells whereas normal non-transformed cells are unaffected. Thus use of TRAIL or agonist antibodies to

its so-called "death receptors" has been a current focus in cancer therapy.

Potential Commercial Applications

- Use of the compounds with known TRAIL or agonist antibodies such as Mapatumumab or in combination with immunotherapeutic approaches for the treatment of cancer.

Competitive Advantages

- Cucurbitacins and withanolides can be successfully developed in combination with known TRAIL agonist have the potential of new cancer combination therapies without major toxicities.

Inventor(s)

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Development Stage

- Pre-clinical (in vivo)

Publications

Nancy L. Booth et al. A cell-based high-throughput screen to identify synergistic TRAIL sensitizers. [PubMed: 19089423]

Patent Status

- **U.S. Provisional:** U.S. Provisional Patent Application Number 61/287,139, Filed 16 Dec 2009
- **U.S. Patent Issued:** U.S. Patent Number 9,238,069, Filed 26 Oct 2012, Issued 19 Jan 2016

Therapeutic Area

- Cancer/Neoplasm