Novel Furoquinolinediones as Inhibitors of TDP2 and Their Potential Use to Treat Cancer

Summary (1024-character limit)

Novel Furoquinolinediones derivatives may act as an anti-cancer agent by the inhibition of tyrosyl-DNA phosphodiesterase 2 (TDP2), an enzyme involved in DNA repair and transcription factor activation. These Furoquinolinediones derivatives may also be used in combination therapies to effectively kill cancer cells.

NIH Reference Number

E-275-2014

Product Type

- Therapeutics

Keywords

- cancer, therapeutic, TDP2 inhibitors, combination therapy

Collaboration Opportunity

This invention is available for licensing and co-development.

Contact

- John D. Hewes
  NCI - National Cancer Institute

  240-276-5515

  John.Hewes@nih.gov

Description of Technology

The invention relates to novel Furoquinolinediones derivatives and their ability to inhibit the enzyme tyrosyl-DNA phosphodiesterase 2 (TDP2), and therefore to serve as anti-cancer agents. Furthermore, these compounds can be used in combination with topoisomerase II (Top2) inhibitors, such as etoposide or doxorubicin, to more effectively kill cancer cells in a synergistic fashion. Pharmaceutical compositions containing these novel Furoquinolinediones and methods of treatment comprising administering of such compositions are disclosed in the invention. Researchers at the NCI seek licensing and/or co-development research collaborations.

Potential Commercial Applications

• Furoquinolinediones derivatives can potentially be utilized for cancer treatment either as stand alone or in combination with other drugs such as Top2 inhibitors

Competitive Advantages

• Combination therapies based on the association of a TDP2 and a Top2 inhibitor because of their synergistic effect should allow the decrease of the effective dosage. Their therapeutic benefit should be observed at non-toxic concentrations for normal cells as it has already been demonstrated for PARP inhibitors in BRCA-deficient tumors.

Inventor(s)

Yves Pommier (NCI), Christophe Marchand (NCI), Linkun An

Development Stage

- Basic (Target Identification)

Patent Status

- **U.S. Patent Filed:** U.S. Patent Application Number 62/100,968, Filed 08 Jan 2015

Therapeutic Area

- Cancer/Neoplasm