UNIVERSITY OF MINNESOTA
Driven to Discover℠

Biguanide Compounds for Estrogen Receptor Positive Breast Cancer Treatment (20140240, Dr. David Potter)

Technology No. 20140240

IP Status: Issued US Patent; **Application #:** 14/641,122

ER+ Breast Cancer Treatment

Biguanide compounds have been created to treat estrogen receptor positive (ER+) breast cancer. *In vitro* studies and breast cancer xenograft models showed that these compounds strongly inhibit the activity of CYP3A4, an epoxygenase that promotes cancer cell growth and proliferation in ER+ breast cancer. ER+ breast cancer represents about 75-80% of breast cancer diagnoses and requires estrogen and/or progesterone to grow and metastasize.

CYP3A4 Inhibitors with Hormonal Therapy

Currently, after surgery, chemotherapy or radiation, hormonal therapy is used as an adjuvant treatment to help reduce the risk of cancer recurrence. These CYP3A4 inhibitors could be used in conjunction with hormonal therapy to help decrease the risk of cancer recurrence, or to slow down the progress of metastatic cancer.

At low doses, these inhibitors were found to activate AMPK and to be more potent than Metformin, indicating they could be an effective treatment for type 2 diabetes and to promote weight loss in obese patients.

BENEFITS AND FEATURES OF CYP3A4 INHIBITORS:

- Could aid hormonal therapies to reduce risk of cancer recurrence or treat metastatic cancer
- Could be used to treat Type 2 diabetes and to promote weight loss
- Compounds are potent inhibitors of CYP3A4
- Activate AMPK

Phase of Development *In vivo*/animal studies

Researchers

David A. Potter, PhD, MD
Associate Professor, Hematology, Oncology and Transplantation, Department of Medicine
External Link (www.dom.umn.edu)