Protein Kinase C Epsilon Small Molecule Inhibitors to Treat Pain, Anxiety, Alcoholism, and Nicotine Addiction

Tech ID: 27379 / UC Case 2012-125-0

INVENTION NOVELTY

This invention provides new inhibitors to protein kinase C epsilon (PKCε) for the treatment and prophylaxis of various diseases such as pain, anxiety, alcoholism, inflammation, cancer, diabetes, and other conditions.

VALUE PROPOSITION

Members of the PKC family have been implicated in diseases/disorders that afflict a significant portion of the human population. In particular, PKCε has been shown to play a role in pain, anxiety, alcoholism, inflammation, cancer, diabetes, and other conditions. Compounds that inhibit PKCε are expected to have analgesic, anxiolytic, anti-addictive, and anti-inflammatory benefits. However, there are no selective small molecule inhibitors of PKCε available.

This novel invention provides the following advantages:

- **Novel** family of inhibitors that can **target PKCε and other isoforms**
- **Highly selective, small molecule** inhibitors
- Inhibit PKCε in the **nanomolar range**
- Preferred **oral administration route**

TECHNOLOGY DESCRIPTION

Researchers at the University of California, San Francisco have identified novel family of inhibitors to PKCs and in particular the PKCε isoform. The compounds also act as inhibitors to novel PKC theta. The compounds are prepared from amine- or carboxylic acid- containing intermediates that react with complementary reactive molecules to form the desired compound. Tested compounds show selective and specific inhibition of PKCε in both *in vitro* and *in vivo* models.

APPLICATION

-Pain

-Anxiety

-Addiction

CONTACT

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OTHER INFORMATION

KEYWORDS

Protein kinase C epsilon, Inhibitors, Small molecules, Therapeutics, Anxiety, Alcoholism, Pain, Inflammation, Cancer, Diabetes, Ischemia

CATEGORIZED AS

- **Medical**
  - New Chemical Entities, Drug Leads
  - Therapeutics

RELATED CASES

2012-125-0

-Inflammation

-Cardiac and cerebral ischemia

-Cancer

-Diabetes

LOOKING FOR PARTNERS

To develop & commercialize this technology as oral medications to treat pain, anxiety, alcoholism, and nicotine addiction

STAGE OF DEVELOPMENT

Preclinical

RELATED MATERIALS

▶ Maiya, R., McMahon, T., Wang, D., Kanter, B., Gandhi, D., Chapman, H. L., ... & Messing, R. O. (2016). Selective chemical genetic inhibition of protein kinase C epsilon reduces ethanol consumption in mice. Neuropharmacology, 107, 40-48.

DATA AVAILABILITY

In vivo and in vitro data

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,376,423	06/28/2016	2012-125

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