NOVEL MOLECULAR TARGET AND NOVEL ANALGESIC COMPOUNDS FOR PAIN

Tech ID: 23260 / UC Case 2013-090-0

BACKGROUND

PAIN REPRESENTS A MAJOR HEALTH AND ECONOMIC PROBLEM THROUGHOUT THE WORLD. DESPITE ADVANCES IN UNDERSTANDING THE PHYSIOLOGICAL BASIS OF PAIN, AN IDEAL ANALGESIC HAS YET TO BE DISCOVERED. AMONG ANALGESIC DRUGS, THE OPIOID CLASS OF COMPOUNDS IS WIDELY USED FOR PAIN TREATMENT. MORPHINE AND RELATED OPIOIDS CURRENTLY USED AS ANALGESICS PRODUCE THEIR EFFECT PRIMARILY THROUGH THEIR AGONIST ACTION AT MU OPIOID RECEPTORS. THE ADMINISTRATION OF THESE DRUGS IS LIMITED BY SIGNIFICANT SIDE EFFECTS SUCH AS THE DEVELOPMENT OF TOLERANCE, PHYSICAL DEPENDENCE, ADDICTION LIABILITY, CONSTIPATION, RESPIRATORY DEPRESSION, MUSCLE RIGIDITY, AND EMESIS. KAPPA (K)-TYPE AGONIST-ANTAGONIST OPIOID ANALGESICS ARE KNOWN, BUT ARE CONSIDERED WEAK ANALGESICS COMPARED TO M-OPIOIDS.

TECHNOLOGY DESCRIPTION

CLINICAL STUDIES HAVE SHOWN THAT KAPPA-TYPE AGONIST-ANTAGONIST OPIOID ANALGESICS (AGONIST-ANTAGONISTS) PRODUCE DELAYED-ONSET ANTI-ANALGESIA IN MEN BUT NOT WOMEN. THEREFORE, THERE IS AN UNMET NEED FOR EFFECTIVE ANALGESIC COMPOUNDS THAT DO NOT POSSESS ANTI-ANALGESIC (E.G. PAIN ENHANCING) PROPERTIES, ESPECIALLY IN MEN.

SCIENTISTS AT UCSF HAVE STUDIED THE ACTION OF ANALGESIC DRUGS THROUGH THE OPIOID RECEPTORS IN RAT MODELS AND BASED ON THEIR RESEARCH IDENTIFIED A NOVEL RECEPTOR RESPONSIBLE FOR THE DELAYED ANTI-ANALGESIC EFFECT OF PAIN DRUGS IN MEN. BASED ON THIS NEW MODALITY OF ACTION THE SCIENTISTS DEVELOPED COMPOUNDS FOR THE TREATMENT OF PAIN IN HUMAN SUBJECTS, PARTICULARLY MALE HUMAN SUBJECTS. THESE COMPOUNDS CAN ACHIEVE THE ANALGESIC EFFECT THROUGH THE OPIOID RECEPTOR WHILE DECREASING THE PAIN ENHANCING EFFECT MEDIATED BY THE IDENTIFIED NOVEL RECEPTOR.

APPLICATIONS

- New compounds for analgesia
- Effective pain management through novel action of compounds
- Prevention of delayed onset of anti-analgesia in males
- Compounds reduce anti-analgesia through novel receptor

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,167,295	01/01/2019	2013-090

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OTHER INFORMATION

KEYWORDS

Pain, Novel Compositions, Therapeutic

CATEGORIZED AS

- **Medical**
  - Other
  - Therapeutics

RELATED CASES

2013-090-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

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

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