Novel IGF2 Signaling Inhibition

Tech ID: 24813 / UC Case 2015-307-0

ABSTRACT

Researchers at the University of California, Davis have developed novel proteins for the inhibition of IGF2 signaling without adversely affecting glucose metabolism.

FULL DESCRIPTION

The insulin receptor (IR) exists in two isoforms: the 'B' isoform (IR-B) which only binds to insulin and is a critical regulator of glucose metabolism, and the 'A' isoform (IR-A) which recognizes both insulin and insulin-like growth factor-2 (IGF2). Aberrant IGF2 has been implicated in many cancers, and binds insulin-like growth factor-1 receptor (IGF1R) in addition to IR-A. In cells with a high IR-A/IGF1R ratio, production of IGF2 stimulates unregulated cell growth.

IR-A is a therapeutic target in cancer, and efforts have been made to produce inhibitors of IGF2 signaling that selectively target IR-A, as inhibitors of IR-B are expected to adversely affect glucose metabolism. Unfortunately, currently available kinase inhibitors do not distinguish IGF1R, IR-A, and IR-B. Additionally, available anti-IGF1R antibodies do not block IR-A or IR-B.

Researchers at the University of California, Davis have developed novel proteins for inhibiting IGF2 signaling. These inhibitors modulate IGF1R and IR-A activity without affecting IR-B activity. These proteins are expected to serve as both drug discovery tools and therapeutic agents to aid in the treatment of a number of hyperproliferative and inflammatory diseases.

APPLICATIONS

- Discovery of compounds for suppression of IGF2 signaling
- Treatment of:
  - Hyperproliferative diseases
  - Cancer
    - Melanoma
    - Neuroblastoma
    - Breast cancer
    - Colon cancer
    - Ovarian cancer
    - Cervical cancer
  - Inflammatory diseases
    - Arthropathies
    - Rheumatoid arthritis
    - Osteoarthritis
  - Autoimmune diseases
    - Rheumatoid spondylitis
    - Autoimmune uveitis
    - Multiple sclerosis
    - Autoimmune diabetes
  - Diseases involving hypervasularization
  - Fibrotic diseases

FEATURES/BENEFITS

- Suppression of IGF1R and IR-A signaling by IGF2, without affecting IR-B signaling

PATENT STATUS

CONTACT

Prabakaran Soundararajan
psoundararajan@ucdavis.edu
tel: .

INVENTORS

- Prieto, Dora C.
- Takada, Yoko K.
- Takada, Yoshikazu

OTHER INFORMATION

KEYWORDS

IGF2, inhibitors, cancer, oncology, isoform, theraphy, drug discovery, autoimmune, hypervasularization, fibrosis

CATEGORIZED AS

- **Medical**
  - Disease: Autoimmune and Inflammation
  - Disease: Cancer
- **Research Tools**
  - Expression System
  - Screening Assays

RELATED CASES

2015-307-0

Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Suppression of sPLA2-Integrin Binding for Treating an Inflammatory Condition or Suppressing Cell Proliferation
- Novel Insight into Inhibiting IGF1 Signaling
- Tumor-Suppressing Growth Factor Decoy
- Novel Fibroblast Growth Factor 1-Derived Peptides for Therapy and Drug Discovery
- Modulating MD-2-Integrin Interaction for Sepsis Treatment
- Integrin Binding to P-Selectin as a Treatment for Cancer and Inflammation

University of California, Davis
InnovationAccess
1850 Research Park Drive, Suite 100, ,
Davis,CA 95618

Tel: 530.754.8649
innovationAccess@ucdavis.edu
research.ucdavis.edu/u/s/ia
Fax: 530.754.7620