Request Information

Permalink

Beta-Arrestin Biased GPCR Agonists for Inflammation and Metabolic Disease

Tech ID: 20932 / UC Case 2009-028-0

BACKGROUND

It has been shown recently that in addition to their classical role in desensitizing G protein coupled receptors (GPCR's), beta-arrestins can act as signaling molecules independently and certain ligands (biased ligands) can selectively activate one pathway but not the other. Different biological responses have been observed with such beta-arrestin biased agonists, compared with traditional GPCR therapeutics designed to activate G-proteins. However, the lack of well characterized ligands for the beta-arrestin pathway demonstrates there is a need for effective screening methods to obtain selective therapeutics that could avoid the side effects of mediating G-protein signaling.

TECHNOLOGY DESCRIPTION

UC San Diego researchers have developed screening methods for beta-arrestin2 biased agonists that bind GPR120 and methods for treating inflammation via activation of a beta-arrestin2 dependent signaling pathway. Data obtained using a model compound to activate the GPCR suggests a novel role for this GPCR in modulating inflammatory responses through the beta-arrestin pathways. Model compounds investigated include DHA and EPA which do not activate the beta-arrestin1 pathway

APPLICATIONS

Treatment of disorders involving inflammation including diabetes, obesity, arthritis, IBD, and neurodegeneration

STATE OF DEVELOPMENT

Demonstration of anti-inflammatory response in in-vitro cellular assays.

PATENT STATUS

Country	Туре	Number	Dated	Case
United States Of America	Issued Patent	8,987,332	03/24/2015	2009-028

RELATED MATERIALS

- ► Gpr120-selective agonist improves insulin resistance and chronic inflammation in obese mice. Olefsky et al.; Nat Med. 2014 Aug;20(8):942-7. PMID: 24997608 07/06/2014
- ▶ Omega 3 fatty acids and GPR120. Olefsky et al.; Cell Metab. 2012 May 2;15(5):564-5. (Review) 05/02/2012
- ► Targeting GPR120 and other fatty acid-sensing GPCRs ameliorates insulin resistance and inflammatory diseases. Olefsky et al.; Trends Pharmacol Sci. 2011 Sep;32(9):543-50 (Review) . 06/12/2011
- ▶ GPR120 is an omega-3 fatty acid receptor mediating potent anti-inflammatory and insulin-sensitizing effects. Olefsky et al.; Cell. 2010 Sep 3;142(5):687-98. 09/03/2010

CONTACT

University of California, San Diego Office of Innovation and Commercialization innovation@ucsd.edu tel: 858.534.5815.



INVENTORS

▶ Olefsky, Jerrold M.

OTHER INFORMATION

KEYWORDS

biomedical/inflammation (diabetes obesity neurodegeneration), research tools (screening assays)

CATEGORIZED AS

- ▶ Medical
 - Disease: Autoimmune and Inflammation
 - ▶ Disease:

Metabolic/Endocrinology

- Screening
- ▶ Research Tools
 - ▶ Screening Assays

RELATED CASES

2009-028-0

University of California, San Diego
Office of Innovation and Commercialization
9500 Gilman Drive, MC 0910, ,

La Jolla,CA 92093-0910

Tel: 858.534.5815 innovation@ucsd.edu https://innovation.ucsd.edu Fax: 858.534.7345 © 2010 - 2017, The
Regents of the University of
California
Terms of use
Privacy Notice