



Peripherally-Acting Cannabinoid Receptor Agonists for Chronic Pain

Tech ID: 23480 / UC Case 2012-715-0

SUMMARY

Researchers from UCLA and RTI International have developed novel, small molecule agonists at cannabinoid type 1 and type 2 receptors (CB1R and CB2R) that have low blood-brain barrier (BBB) permeability. The compounds represent promising therapeutics for treating chronic pain.

BACKGROUND

Current treatments of different types of chronic pain are geared towards decreasing inflammation (if it exists) and maximizing pain relief while minimizing side effects associated with each particular drug type. Unfortunately, this has been a difficult goal to achieve and all of the current treatments for chronic pain, particularly pain of neuropathic origin, have significant side effects which limit their usefulness. Recently, drugs targeting cannabinoid receptors have proven efficacious for patients. However, while current clinical treatments with FDA-approved cannabinoid-based analgesic can provide relief from chronic pain symptoms, these treatments also produce several significant central nervous system-mediated side effects.

INNOVATION

Dr. Igor Spigelman of UCLA's School of Dentistry and Dr. Herbert Seltzman, a collaborator at RTI International, have designed small molecules effective in alleviating chronic pain of inflammatory and neuropathic origin without any centrally-mediated side effects. The molecules are peripherally-acting cannabinoid compounds with high affinity for cannabinoid receptors and have been specifically designed to have limited permeability at the blood-brain barrier.

APPLICATIONS

- ▶ Control chronic pain of inflammatory and neuropathic origin
- ▶ Reduce intraocular pressure

ADVANTAGES

- ▶ No centrally-mediated side effects
- ▶ High affinity for cannabinoid receptors

STATE OF DEVELOPMENT

- ▶ Compounds with high agonist activity for CB₁R and low BBB permeability were examined for stability in blood plasma
- ▶ Pharmacokinetic studies support minimal brain penetration
- ▶ Preclinical trials in rat models of chronic inflammatory and neuropathic pain have been completed and lead compounds have been identified

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,656,981	05/23/2017	2012-715

CONTACT

UCLA Technology Development Group
ncd@tdg.ucla.edu
tel: 310.794.0558.



INVENTORS

- ▶ Spigelman, Igor

OTHER INFORMATION

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Health
- ▶ **Medical**
 - ▶ Disease: Central Nervous System
 - ▶ Therapeutics

RELATED CASES

2012-715-0

UCLA Technology Development Group

10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095

tdg.ucla.edu

Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu

© 2013 - 2017, The Regents of the University of California

[Terms of use](#)

[Privacy Notice](#)

