A Method to Identify Novel Glucocorticoid Receptor Modulators

Tech ID: 25581 / UC Case 2008-007-0

INVENTION NOVELTY

This technology establishes a novel method to identify compounds that are either selective or non-selective modulators of glucocorticoid receptor signaling.

VALUE PROPOSITION

Glucocorticoids are often used as a first-line therapy in immune-mediated diseases such as asthma and rheumatoid arthritis. However, severe side effects including osteoporosis, muscle wasting, and diabetes limit the effective dose that can be delivered to a patient. Discovery of compounds and therapeutic agents that can selectively modulate the response of different tissues and cell types to glucocorticoid stimulation would significantly enhance treatment modalities. Therefore, inventors at UCSF have developed a high-throughput method to identify compounds that can act as selective agonists or antagonists of glucocorticoid receptor (GR) signaling. This novel method provides the following advantages: 1. A high-throughput method that can be used to screen large compound libraries for modulators of glucocorticoid signaling; 2. Simultaneously tests multiple transcriptional targets of glucocorticoid receptor signaling and provides refined information about compound specificity; 3. Identifies novel glucocorticoid modulators that can be combined with existing drug therapies to create new treatments for asthma and rheumatoid arthritis.

TECHNOLOGY DESCRIPTION

Inventors at the University of California, San Francisco have developed a novel method to identify transcriptional modulators of glucocorticoid receptor target genes. This cell-based system uses several unique glucocorticoid-responsive gene promoters to drive expression of fluorescent proteins with distinct emission properties. Upon addition of chemical compounds to the cells, emission spectra are measured and used to assess glucocorticoid modulatory activity. More broadly, this system can be adapted to screen for modulators of other ligand-dependent signaling pathways as well. Proof of principle has been demonstrated by the identification of aclacinomycin as a non-selective GR antagonist.

APPLICATION

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OTHER INFORMATION

KEYWORDS

Glucocorticoid Receptor Modulators, Compound Identification, Immune-mediated diseases, Asthma, Rheumatoid Arthritis (RA)

CATEGORIZED AS

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

RELATED CASES

2008-007-0

1. Identification of new glucocorticoid receptor modulators. 2. Development of novel therapies for asthma and rheumatoid-arthritis. 3. Identification of ligand-dependent nuclear receptor signaling modulators.

LOOKING FOR PARTNERS

To develop and commercialize this technology as a new method of identifying immune-mediated disease therapies.

STAGE OF DEVELOPMENT

Preclinical

RELATED MATERIALS

► Gerber et al (2009) Discovery of selective glucocorticoid receptor modulators by multiplexed reporter screening. PNAS Vol.106, No.12, p4929-4934.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,940,705	01/27/2015	2008-007

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