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Androgen receptor inhibitors: Novel therapeutic compounds and innovative screening method.

Tech ID: 19888 / UC Case 2008-123-0

FULL DESCRIPTION

Background:

Prostate cancer, alopecia, hepatocellular carcinoma, and acne vulgaris are a few examples of the myriad of diseases linked to androgen receptor signaling. These diseases have a significant impact on human health; for example, The American Cancer Society estimates that in 2009, prostate cancer will cause 27,360 deaths and 192,280 new cases will be diagnosed. In fact, one man in six will get prostate cancer in his lifetime and one in thirty-five will die from this disease. Androgen receptor inhibitors are the primary treatment option for androgen-related diseases. Current inhibitors prevent ligand binding to the androgen receptor, but these treatments can result in acquired resistance and serious side effects. Due to the limitations of current treatment options, alternative antiandrogen therapies are urgently needed.

Inventions:

Prominent UCSF scientists have discovered a suite of novel small molecule inhibitors of the androgen receptor. Using an innovative approach to avoid the pitfalls associated with current antiandrogen therapies, Dr Diamond's team identified multiple compounds that inhibit the androgen receptor post-ligand binding. The team validated this work by demonstrating the ability of these compounds to inhibit endogenous androgen receptor activity in prostate cancer-derived cell lines. Further validation in animal models of prostate cancer is underway for many of the novel compounds. Significantly, the team demonstrated that one such compound, pyrvinium pamoate, inhibits androgen receptor signaling in vivo and induces prostate atrophy. Furthermore, pyrvinium synergizes with known inhibitors that prevent ligand binding (Jones et al. 2009).

In addition to the novel compounds, an assay to detect selective gene regulation by ligand dependent transcription factors has been developed. This assay could be used to uncover additional candidates for androgen receptor inhibition. The assay has been successfully tested on the glucocorticoid receptor and led to the discovery of selective modulators of this receptor for treatment of inflammation, allergic, and immune-mediated diseases.

Three patents have been filed on these technologies to provide a strong IP position for a licensee.

SUGGESTED USES

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INVENTORS

▶ Diamond, Marc I.

OTHER INFORMATION

KEYWORDS

Androgen-related diseases,

Androgen, Androgen

receptor inhibitor, prostate

cancer, acne, alopecia,

hepatocellular carcinoma

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Materials & Chemicals**
- ▶ Biological
- ▶ **Medical**
- ▶ Disease: Cancer
- ▶ New Chemical Entities, Drug Leads
- ▶ Screening
- ▶ Therapeutics

RELATED CASES

- ▶ Novel, potent inhibitors of androgen receptor signaling for the treatment of androgen-related diseases such as prostate cancer, alopecia, hepatocellular carcinoma, and acne vulgaris.
- ▶ Proven method to screen for additional inhibitors of androgen receptor signaling.

2008-123-0, 2006-079-1

RELATED MATERIALS

Patents and Publications:

Invention: Novel androgen receptor agonists and methods of treating androgen-related diseases.

UC Case No: SF2008-123 and SF2006-079

Patents: PCT/US09/041715 and US12/101,680 .

Publications: Jones et al (2008) *A cellular conformation-based screen for androgen receptor inhibitors*. ACS Chemical Biolody Vol.3 No.7 p412-418; Jones et al (2009) *Non-competitive androgen receptor inhibition in vitro and in vivo*. PNAS Vol.106, No.17, p7233-7238.

Invention: Method to screen for modulators of ligand dependent transcription factors and selective modulators of the glucocorticoid receptor for treatment of inflammation, allergic and immune-related diseases.

UC Case No: SF2008-007

Patents: U.S. Provisional application pending

Publications: 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	8,580,773	11/12/2013	2008-123
United States Of America	Issued Patent	8,354,538	01/15/2013	2008-123

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [A Method to Identify Novel Glucocorticoid Receptor Modulators](#)

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