SALT-SPARING UREA TRANSPORT INHIBITOR DIURETICS FOR TREATMENT OF CARDIOVASCULAR AND RENAL DISORDERS

Tech ID: 24803 / UC Case 2014-175-0

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INVENTORS

- Esteva-Font, Cristina
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OTHER INFORMATION

KEYWORDS

Diuretics / Diuretic therapy,

Urea Transporter A / UT-A,

Hyperuricemia,

Hyponatremia

CATEGORIZED AS

- **Medical**
  - Disease: Cardiovascular and Circulatory System
  - Disease: Metabolic/Endocrinology
  - New Chemical Entities, Drug Leads
  - Therapeutics

RELATED CASES

2014-175-0

INVENTION NOVELTY

Therapeutic inhibitors of Urea Transporter A (UT-A) as highly effective diuretics with reduced risk of cardiac and neurological side effects for treatment of cardiovascular and renal disorders

VALUE PROPOSITION

Diuretics are a first line of therapy for about 20 million people worldwide suffering from cardiovascular and renal disorders. Most existing diuretic drugs work by suppressing electrolyte transport mechanisms in the kidney, which can produce neurological and cardiac side effects. There is an unmet clinical need for safer and more effective diuretics. The new compounds target urea transport mechanisms.

The current invention provides the additional advantages:

- First-in-class small-molecule inhibitors of UT-A
- Produce strong diuresis via electrolyte- independent mechanism
- Effective at very low concentrations
- Increase safety and efficacy of diuretic therapy

TECHNOLOGY DESCRIPTION

Scientists at the University of California San Francisco performed high-throughput screening of >150,000 compounds to discover potent and selective small-molecule inhibitors of UT-A, which can be used as safe and effective diuretic agents. Binding of the new molecules to UT-A disrupts the countercurrent multiple mechanism in kidney, inhibiting urinary concentration. The efficacy and potency of these compounds has been validated in rats.

APPLICATION

- Treatment of edema associated with congestive heart failure, nephrotic syndrome, cirrhosis, and SIADH

LOOKING FOR PARTNERS

- To develop and commercialize this technology for urea transport-targeted, salt-sparing diuretics

STAGE OF DEVELOPMENT

Preclinical

RELATED MATERIALS

- Esteva-Font et al. (2014), FASEB J.

DATA AVAILABILITY

In vitro and in vivo data

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,123,340	09/21/2021	2014-175

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Potent TMEM16A Small Molecule Treatment for Inflammatory and Reactive Airway Diseases, Asthma, Hypertension, Pain and Cancer
- Novel Small Molecule Drug for the Treatment of Constipation and Oxalate Kidney Stones
- Small Molecule Pendrin Inhibitors for Treatment of Inflammatory Airway Diseases and Diuretic Resistance
- Immunotherapy for Treatment of Neuromyelitis Optica (NMO)

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