PRO- RESOLVING MEDIATORS AND DEVICES FOR THERAPEUTIC MODULATION OF BLOOD VESSEL HEALING

Tech ID: 24760 / UC Case 2013-015-0

INVENTION NOVELTY

This invention consists of the use of a novel class(es) of anti-inflammatory and pro-resolving mediators derived from ω-3 polyunsaturated fatty acids, as well as devices designed to deliver these mediators directly to blood vessel for therapeutic modulation of blood vessel healing.

VALUE PROPOSITION

Re-narrowing of arteries and grafts following procedures such as angioplasty, stenting and bypass surgery remains an exceedingly common problem in all areas of cardiovascular surgery. Currently, drug eluting stents which release anti-proliferative agents is used, but these agents are limited by the non- selective nature of their cytotoxic effects, producing endothelial damage, and generally delay, rather than potentiate healing.

This novel invention provides the following advantages:

- A non- toxic approach that directly resolves vascular inflammation rather than cell death
- Utilization of naturally occurring compounds
- Highly effective and localized at nanomolar concentrations
- No local or systemic toxicity
- Devices include stents and films that elute therapeutically relevant amounts of compounds that are biologically active.

TECHNOLOGY DESCRIPTION

Scientists at the University of California, San Francisco have identified novel pro-resolving mediators derived from ω-3 polyunsaturated fatty acids as well as precursors and derivatives of these molecules for the therapeutic modulation of vascular injury. These substances can be delivered locally within the vessel lumen via direct injection, within the wall, or externally to reduce inflammation at sites of clinical vascular injury such as angioplasty, stenting, surgical repair or bypass surgery. Another application would be direct incorporation of these compounds into biomaterials or prosthetics for vascular grafts, or even systemic administration via oral or intravenous routes. In addition, the inventors have also designed pro-resolving vascular devices (PRVD) to deliver these mediators directly to blood vessels.

APPLICATION

CONTACT

Todd M. Pazdera
todd.pazdera@ucsf.edu
tel: 415-502-1636.

INVENTORS

- Conte, Michael S.
- Desai, Tejal A.
- Serhan, Charles N.

OTHER INFORMATION

KEYWORDS

Vascular injury, Pro-resolving mediators, Inflammation, Pro-resolving vascular device (PRVD), Healing

CATEGORIZED AS

- **Biotechnology**
  - Health
- **Medical**
  - Devices
  - Disease: Cardiovascular and Circulatory System
  - Research Tools
  - Therapeutics

RELATED CASES

- Develop a broad line of commercial products for improving vascular patency and function

2013-015-0

LOOKING FOR PARTNERS

To develop and commercialize this technology as an effective treatment for vascular injury.

STAGE OF DEVELOPMENT

Prototype

RELATED MATERIALS

- Conte MS et al., D-series resolvin attenuates vascular smooth muscle cell activation and neointimal hyperplasia following vascular injury. FASEB J. 2013 Jun;27(6):2220-32.

DATA AVAILABILITY

Under NDA/CDA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,111,847	10/30/2018	2013-015
United States Of America	Issued Patent	9,463,177	10/11/2016	2013-015

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Nanowire-Coated Planar Microdevices For Transmucosal Drug Delivery
- Sealed Nanostraw Microdevices For Oral Drug Delivery

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,

San Francisco,CA 94158

CONTACT

Tel:

innovation@ucsf.edu

https://innovation.ucsf.edu

Fax: