

Use of Thiazolidinediones for Treatment of Eosinophilic Esophagitis Pathologic Remodeling

Tech ID: 30569 / UC Case 2019-287-0

BACKGROUND

Esophageal inflammatory disorders are gaining increased recognition in both adults and children. One example is eosinophilic esophagitis (EoE), which is an emerging and fast-growing disorder characterized by high levels of eosinophils in the esophagus, as well as esophageal cellular changes such as basal zone hyperplasia and esophageal remodeling that includes fibrosis and smooth muscle dysfunction. These complications can lead to trouble swallowing, strictures, and food impactions. EoE is thought to be provoked, in at least a subset of patients, by food allergies or airborne allergen exposure. EoE diagnosis is often associated with other hypersensitivity disorders, including asthma, rhinitis, and other food and aeroallergen inhalant sensitivities. Diagnosis requires the finding of 15 or more eosinophils per high power field (eos/hpf) within esophageal mucosal biopsies.

Although EoE is becoming more frequently diagnosed throughout developing countries, many aspects of the disease remain unclear including its etiology, natural history and optimal therapy. Symptoms of EoE often mimic those of gastroesophageal reflux disease (GERD) and include vomiting, dysphagia, pain and food impaction. In the absence of long-term treatment, up to 70-80% of adults with eosinophilic esophagitis (EoE) may go on to develop esophageal strictures. This disease now is likely to occur in 1 in 1000 people in the population and will have a dramatic effect on the patients' quality of life. While there are therapies that control inflammation, not all patients respond to these therapies and continue to progress to fibrotic changes. There are currently no medical treatments to directly target esophageal fibrosis.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have developed methods for treating eosinophilic inflammatory diseases and fibrosis. This involves the use of a local or system administration of thiazolidinediones (TZDs) to subjects having fibrosis resulting from an inflammatory eosinophilic disease or disorder. The resulting treatment demonstrates that TZDs can inhibit and reduce fibrotic formation.

APPLICATIONS

Add-on therapy to treat the fibrotic and remodeling consequences of EoE

ADVANTAGES

This represents a new use for this class of drugs.

STATE OF DEVELOPMENT

We have demonstrated in preclinical studies that thiazolidinediones decrease the expression of a subset of pro-fibrotic and myofibroblast genes in EoE, but not in normal, esophageal fibroblasts. We have further demonstrated that EoE but not normal esophageal biopsies express PPAR- γ , the receptor for thiazolidinediones.

INTELLECTUAL PROPERTY INFO

A patent has been submitted and the technology is available for licensing.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Thiazolidinediones, Eosinophilic

Esophagitis, inflammatory diseases,
fibrosis

CATEGORIZED AS

- **Medical**
 - Disease: Autoimmune and Inflammation
 - Therapeutics

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