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Tungstate Treatment of Inflammatory Bowel Disease-Associated Dysbiosis

Tech ID: 23666 / UC Case 2013-610-0

ABSTRACT

Researchers at the University of California, Davis have found that oral treatment of tungstate is an effective treatment of Inflammatory bowel disease.

FULL DESCRIPTION

Conditions of intestinal inflammation, from disease states such as inflammatory bowel disease, can lead to microbial imbalance (dysbiosis) characterized by the representation of microbes that are otherwise not found in the intestine, such as E. coli. This increased relative abundance of facultative anaerobic bacteria, such as E. coli is thought to exacerbate inflammatory bowel disease symptoms and duration.

Researchers at the University of California, Davis have found that oral treatment of tungstate is an effective treatment of IBD. Administration of Tungstate diminished the total number of E. coli strains and allowed both facultative and obligate anaerobe strains to recover to similar levels, which indicated that tungsten blunts the fitness advantage conferred by anaerobic respiration as tungstate substitutes as a competitive antagonist for molybdenum in molybdopeterin cofactor of reductases used by E. coli to perform anaerobic respiration. These results suggest that oral administration of soluble tungsten salts can aid in restoring a normal microbiota composition by specifically inhibiting anaerobic respiratory pathways operational only during gut inflammation. Treatment with tungsten salts has further been shown to reduce morbidity in mouse models of IBD.

APPLICATIONS

- Treatment for Irritable bowel disease

FEATURES/BENEFITS

- Tungstate has no adverse side effects unlike current anti-inflammatory therapies such as anti-TNF alpha antibodies
- A targeted therapy that only gets rid of the bad microbes, while leaving beneficial microbes unharmed

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,092,596	10/09/2018	2013-610

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OTHER INFORMATION

KEYWORDS

inflammatory bowel
disease, dysbiosis,
intestinal inflammation,
tungstate, oral treatment,
E. coli, inflammation, anti-
inflammatory

CATEGORIZED AS

- **Biotechnology**
 - Health
- **Materials & Chemicals**
 - Chemicals
- **Medical**
 - Disease:
Autoimmune and
Inflammation
 - Disease: Digestive
System
 - New Chemical
Entities, Drug Leads
 - Other
 - Therapeutics

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2013-610-0

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