

# Methods to Treat Dry Mouth in Sjögren's Syndrome

Published date: Feb. 16, 2017

## Technology description

### Invention Summary

Sjögren's syndrome is an autoimmune disease that affects the entire body. The most common symptoms include dry eyes and dry mouth which causes pain for the patient and can make it difficult to swallow or speak. Sjögren's syndrome is one of the most dominant autoimmune diseases, with upwards of 4 million American's suffering from the syndrome. There is no cure for the disease; but basic treatments for symptoms exist. Two novel methods for treating, and potentially curing, dry mouth are under development at the University of Utah. The first uses Resolvin D1 to improve salivary gland epithelial integrity in cytokine-damaged cells. This technology intends to use a scaffold for localized delivery or intravenous administration for systemic delivery of Resolvin D1 into glands to treat dry mouth and dry eye. The second is a fibrin-based hydrogel used to regenerate the salivary glands in people who suffer from Sjögren's syndrome. The hydrogel is combined with functional groups, which are chemically conjugated to fluorescent FH to form new salivary tissue. Regenerating dysfunctional salivary glands should reduce or eliminate dry mouth symptoms in these individuals.

### Market Opportunity

It is estimated that nearly four million American's have Sjögren's syndrome, with approximately 200,000 new cases diagnosed every year. The global market for Sjögren's syndrome treatment reached \$1.1 billion in 2014 and is expected to hit \$2.2 billion by 2024, with a compound annual growth rate (CAGR) of 7.2%. The market for Sjögren's syndrome therapeutics is expected to hit \$626 million by 2019 and has a CAGR of 5.4%. Furthermore, the direct cost of patients with Sjögren's syndrome on the U.S. healthcare system is approximately \$800 per patient annually or upwards of \$3 billion each year. The indirect costs, which include missed work days and lost labor, are thought to be closer to \$10,000 per patient annually or \$40 billion. This serves as further evidence of the need for new and improved treatment options.

### Advantages

Reduces or eliminates pain, difficulty swallowing, speech problems and other symptoms of dry mouth in Sjögren's syndrome patients

Promotes tissue regenerations for salivary glands

Low manufacturing cost

Potential to prevent onset of the disease for high risk patients and/or cure the disease

## Institution

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