

## Therapy for Periodontal (Gum) Disease

### Brief Description

MFG-E8 to treat periodontal bone loss and chronic inflammation associated with gum disease

### Inventor

George Hajishengallis

### STATE OF DEVELOPMENT

Non-human primate studies demonstrating proof of concept

### INTELLECTUAL PROPERTY

PCT Pending

### REFERENCE MEDIA

Abe et al., [J Immunol. 2014 Aug 1;193\(3\):1389-1391](#)

### DESIRED PARTNERSHIPS

- License
- Co-development

### LEARN MORE

Melissa Kelly, Ph.D.  
[kellymel@upenn.edu](mailto:kellymel@upenn.edu)  
215.898.9877

Docket # 14-7038

### Problem

Periodontal (gum) disease is a chronic inflammatory condition arising in response to bacteria present in dental plaques. The result of this inflammation can be destruction of the gums, periodontal ligament or alveolar bone. It is estimated that nearly half of all American adults suffer from some form of gum disease, which equates to 64.7 million people 30 years and older (CDC). Current therapeutic approaches include nonsurgical techniques such as teeth scaling and root planing as well as surgical methods (i.e. flap surgery, bone grafts, soft tissue graft and bone surgery). Antibiotics are now being prescribed alongside surgical and non-surgical remedies so to decrease the oral bacterial population. While this may slow disease progression, eventually bacteria will return, as chronic antibiotic administration is not feasible.

### Solution

Dr. George Hajishengallis has identified a unique non-invasive non-surgical treatment for periodontal disease which not only alleviates the chronic inflammatory condition but also prevents periodontal bone loss. Administration of a factor called MFG-E8 to periodontitis mouse and non-human primate models led to a decrease in clinical inflammatory parameters and significantly reduced the amount of bone loss. Interestingly, when examining human periodontitis tissue samples, a decrease in MFG-E8 levels was observed when compared to healthy tissue.

### Advantages

- Acute local administration
- Prophylactic and therapeutic
- Obviates the need for surgery
- Multiple modes of delivery (i.e. injection, mouthwash, toothpaste)