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# New Therapeutic Leads for Cachexia and Anorexia

Tech ID: 22013 / UC Case 2011-318-0

### **BACKGROUND**

The agouti-related protein (AgRP) produced in the brain is a potent appetite stimulant. AgRP binds with high affinity to melanocortin (MC) receptors and plays a central role in energy balance by stimulating feeding and decreasing energy expenditure. This modified AgRP invention provides unexpectedly superior results when used as an appetite stimulant. AgRP animal models have successfully demonstrated enhanced feeding for an extended period, longer acting than any other known hormone or drug used to treat diseases such as cachexia or anorexia.

### **TECHNOLOGY DESCRIPTION**

UCSC researchers have previously isolated the specific region of AgRP that is required to bind to the MC receptors. New studies show regions adjacent to those that make receptor contact are critical for AgRP's long lasting activity. UCSC researchers have now designed reliable non-natural proteins where they can greatly extend the time over which a single AgRP injection stimulates feeding. Normally, AgRP stimulates feeding over one to three days. Here the newly designed protein stimulates feeding for up to six days. Moreover, the cumulative food intake stimulated by UCSC's designed AgRP is approximately double that of other appetite stimulating proteins. The animal models demonstrate an increase in body weight by 15% in a one week period, compared to 5% in animals treated with wild type AgRP.

## **APPLICATIONS**

▶ Therapeutic treatment for extreme cases of eating disorders such as anorexia or cachexia

### **ADVANTAGES**

- ▶ Stimulates feeding for more than six days after a single injection
- ▶ Stimulates feeding longer than all other known hormones/drugs

## **RELATED MATERIALS**

Journal Publication: Agouti-related protein segments outside of the receptor binding core are required for enhanced short- and longterm feeding stimulation. - 02/17/2012

## INTELLECTUAL PROPERTY INFORMATION

Country	Туре	Number	Dated	Case
United States Of America	Issued Patent	9,394,343	07/19/2016	2011-318
Patent Cooperation Treaty	Published Application	WO 2013/006656	01/10/2013	2011-318

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#### OTHER INFORMATION

#### **KEYWORDS**

Cachexia, anorexia, therapeutic, enhanced mammalian feeding, appetite stimulant, Agouti-related Protein, AgRP, eating disorder, Cat1

## **CATEGORIZED AS**

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  - Disease: Genetic

Diseases and Dysmorphic

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2011-318-0