



## FOR IMMEDIATE RELEASE

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### **Ember Therapeutics Announces *Nature* Publication of Brown Fat Biology Data; Program Exclusively Licensed from the Dana-Farber Cancer Institute**

*Novel Hormone Identified that Augments Brown Fat, Increases Energy Expenditure, and Reduces Obesity and Insulin Resistance*

**Boston, Mass. – January 11, 2012 – [Ember Therapeutics, Inc.](#)**, a company harnessing breakthroughs in brown fat biology and insulin sensitization to revolutionize the treatment of metabolic disease, today announced the publication of key data supporting its lead brown fat biology program in the journal *Nature*. The paper details for the first time the discovery and identification of a new hormone, irisin, which is present and identical in mice and humans and has been shown to act on white fat cells in culture and *in vivo* to stimulate UCP1 expression and brown fat development. The publication outlines how even relatively short treatments of obese mice with irisin caused an increase in energy expenditure with no changes in activity levels or food intake, resulting in improved glucose homeostasis and weight loss.

This research was led by [Bruce Spiegelman, Ph.D.](#), professor of cell biology, Dana-Farber Cancer Institute, Harvard Medical School, and a co-founder of Ember, and was funded by the National Institutes of Health. Ember recently entered into an exclusive license agreement with Dana-Farber Cancer Institute for this irisin technology and is optimizing and developing a proprietary molecule designed to augment and activate the body's brown fat.

“These data represent an important step forward in the emerging area of brown fat biology as they mark the first identification and evaluation of irisin, a naturally occurring hormone that has demonstrated the ability to stimulate brown fat development in white fat cells,” said Dr. Spiegelman. “We believe that innovative brown fat targets and therapeutic pathways are key to developing new and effective treatments for metabolic disorders and that, given these data, irisin could be a therapeutic for human metabolic disease and other disorders that are improved with exercise.”

In the *Nature* paper, researchers identify irisin as a distinct, secreted portion of FNDC5, a membrane protein, and show that it provides a signal from muscles to other tissues. Consequently, it was named irisin by researchers after Iris, the Greek messenger goddess. Importantly, irisin was shown to be present in both mouse and human plasma, increase with exercise and demonstrate remarkable conservation between species, with 100 percent identity between mice and humans. The *Nature* publication also outlined that mice treated with irisin did not display any adverse reaction and there was no apparent toxicity in any major organ system.

The paper, “A PGC1- $\alpha$ -dependent myokine that drives brown-fat-like development of white fat and thermogenesis” is now available [online](#).

“Ember is aggressively working to translate world-class brown fat research, like these breakthrough irisin data, into peripherally-acting treatments for metabolic diseases, including Type 2 diabetes and obesity,” said Louis Tartaglia, Ph.D., president and interim chief executive officer of Ember. “With these conditions at epidemic levels worldwide, the need is more critical than ever for innovative, safe, and effective treatments that could dramatically impact the lives of patients.”

### **About Brown Fat**

Unlike white fat, which stores energy, [brown fat](#) burns off caloric energy. While humans are born with large amounts of brown fat, adults lose most of these brown fat stores to maximize metabolic efficiency and enable them to survive when food is not plentiful. However, in today’s abundant food environment, this metabolic efficiency is actually a major contributor to metabolic disease including obesity and Type 2 diabetes. Ember is developing a broad pipeline of large and small molecule programs that augment and activate the body’s brown fat, amplifying the natural ability to efficiently burn fuel stores such as glucose and lipids to reduce stored calories in the body.

### **About Diabetes and Obesity**

While diabetes currently affects one in 10 U.S. adults, the Centers for Disease Control forecasts that up to one in three American adults could have diabetes by 2050. Experts attribute the rise in obesity nationwide – about one-third of all U.S. adults are obese and another third are overweight – as one of the major contributors to this growing epidemic. The direct annual medical costs associated with Type 2 diabetes and obesity are more than \$265 billion in the U.S. alone.

### **About Ember Therapeutics, Inc.**

Ember Therapeutics is a product-focused company harnessing breakthroughs in brown fat biology and insulin sensitization to revolutionize the treatment of metabolic disease. Today’s rising epidemic of obesity and Type 2 diabetes coupled with the lack of innovation in the industry’s metabolic disorder treatment pipeline underscores the need for novel, peripherally-acting treatments with improved safety profiles. Ember’s unique approach leverages recent research breakthroughs in brown fat biology to develop a pipeline of proprietary large and small molecules designed to amplify the body’s innate ability to efficiently burn fuels like glucose. Ember’s expertise is also driving the development of the next generation of highly selective insulin sensitizers that have robust anti-diabetic effects, but lack the serious side effects of currently approved insulin sensitizers. Ember is a private company launched in 2011 by renowned scientific founders, an experienced leadership team and Third Rock Ventures. For more information, please visit [www.embertx.com](http://www.embertx.com).

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