Technology Overview

Title: Method to Enhance Proteasome Function by Manipulating a Novel UPS Regulator

Reference:	0821
Summary:	Biomedical researchers at the University of South Dakota have discovered a useful method to improve the ubiquitin-proteasome system (UPS) function of cells, with potential applications in treatment of conformational diseases such as Type II diabetes and congestive heart disease.
Description:	The ubiquitin-proteasome system (UPS) is responsible for the degradation of cellular proteins, playing an indispensible role in cellular processes such as protein quality control and cell cycle regulation. UPS malfunction is associated with a number of conformational diseases such as most of the neural degenerative diseases, amyloidosis, type II diabetes, and congestive heart failure. Our research has established a method to enhance UPS-mediated removal of misfolded proteins, with significant therapeutic implications, by manipulating a recently discovered UPS regulator. The method uses small interference RNA technology to down-regulate a critical subunit of the regulator. This has the effect of enhancing the degradation of a surrogate misfolded protein, suggesting that this method enhances the UPS proteolytic function over abnormal proteins.
Advantage:	-- Useful in treatment of a range of conformational diseases -- Potential applications for both genetic and drug therapies
Application:	Pharmaceuticals, medical therapies, medical research
Stage:	Proof of concept established. Seeking commercial partner for applied research and commercialization of the technology.
Patents:	IP protection under review.
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Keywords:	Medical research, conformational diseases, ubiquitin-proteasome system, neural degenerative diseases