



**THE UNIVERSITY of TEXAS**

**HEALTH SCIENCE CENTER AT HOUSTON**

Office of Technology Management

## **SUMO-SPECIFIC PROTEASE NUCLEOTIDES AND PROTEINS FOR DIAGNOSING HYPERPROLIFERATIVE DISEASES**

**Market:** Prostate cancer is the second most common cancer, and second leading cause of cancer death, in American men. The American Cancer Society predicts over 186,000 new diagnoses of prostate cancer, and over 28,000 deaths in the US in 2008. With early detection being key to a better prognosis, a significant number of people are demanding faster and more accurate diagnosis, and more targeted, efficient, and effective therapies.

**Competitors and Current Problems:** One diagnostic of prostate cancer is by the PSA blood tests. Unfortunately, if higher than normal levels of PSA are detected in blood, it could indicate prostate inflammation, prostate enlargement or be a normal fluctuation rather than being indicative of cancer. False positive are problematic.

**The Technology:** A UTHSCH scientist has identified and characterized a prostate cancer target, SENP1, also known as Sentrin/SUMO- specific protease 1, with diagnostic and therapeutic implications, as well as developing methods of use and research tools useful in analysis. Included in the portfolio are nucleotide and polypeptide segments potentially useful as diagnostics for prostate cancer and possibly other cancers, as well. Characterization includes expression profiles, subcellular localization, and in vitro activity. SENP1 is over-expressed in prostatic intraepithelial neoplasia (PIN) and prostate cancer tissues, but not in normal prostate tissue. SENP1 transgenic mice that over-express SENP1 in the prostate gland cause the development of high-grade prostatic intraepithelial neoplasia. Recent work demonstrated SENP1 stabilizes hypoxia-inducible factor 1 $\alpha$  during hypoxia, thus playing a critical role in tumor angiogenesis. Work by the inventor also resulted in the development of important tools, such as antibodies and transgenic and knock-out mice.

**References:** Cell, Vol. 131, 584-595, 2007; Neoplasia, Vol. 8, No. 8, 667-676, 2006; The Journal of Biological Chemistry, Vol. 15, 14492-14498, 2005; Human Molecular Genetics, Vol. 14, No. 14, 1955-1963, 2005; Molecular and Cellular Biology, Vol. 24, No. 13, 6021-6028, 2004; Gene, Vol. 248, 1-14, 2000; The Journal of Biological Chemistry, Vol. 275, 3355-3359, 2000

### **NON-CONFIDENTIAL TECHNOLOGY DESCRIPTION**

The preceding is intended to be a non-confidential summary of a novel technology created at the University of Texas Health Science center at Houston (UTHSCH), for which the University has obtained patent protection.

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**Inventors:** E. T. H. Yeh

**Patent Status:** US 6,596,527; 7,179,650; and pending applications

**License Available:** world-wide; exclusive or non-exclusive

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