

Taiwan Scientists, led by Dr. Tzu-Hao Cheng of Yang-Ming University, found a molecular mechanism that may delay the onset of NEURODEGENERATIVE diseases and published the results on Cell

Quite by serendipity, I was informed recently that about two months ago, one of National Tsing Hua University's faculty members, Professor Chuang-Rung Chang of the Department of Life Sciences published a paper in *Cell*, Volume 148, Issue 4, 690-701, 17 February 2012. The research was led by Dr. Tzu-Hao Cheng of National Yang-Ming University.

The group found that there is a molecular mechanism that may delay the onset of NEURODEGENERATIVE disease .

The following is the PRESS RELEASE from Yang-Ming University.

It is worth mentioning that National Tsing Hua University, together with National Yang-Ming University, National Chiao Tung University and National Central University are all members of the so-called University System of Taiwan!

Da Hsuan Feng
Senior Vice President
National Tsing Hua University

National Yang Ming University press release

Dr. Tzu-Hao Cheng, an associate professor of the Institute of Biochemistry & Molecular Biology, lead his research team, in collaboration with Dr. Stanley N. Cohen of Stanford University, Dr. Chuang-Rung Chang of National Tsing Hua University and Dr. Yijuang Chern of Academia Sinica to investigate neurodegenerative diseases and found a molecular mechanism that may delay the onsets of these diseases.

On February 22nd, 2012, the group revealed their results in a press conference held in National Yang-Ming University. His group presented that when transcription elongation factor Spt4 is suppressed; the expression level of disease-causing mutant gene is reduced and can prevent neuronal cell death. As a result, this is likely to delay the onset of diseases. A collection of these findings has been published in the world renowned journal: Cell.

These neurodegenerative diseases, such as Huntington's Disease (HD) and Spinocerebellar Ataxia (SCA) are inherited autosomal dominant diseases. Afflicted patients gradually lose their mobility, cognition, and eventually die as the disease progresses. The pathogenesis of these diseases is due to expression of mutant genes that causes neuron cell death. However, the molecular mechanisms underlying the gene expression is not fully understood, very little progress has been made in a therapeutic approach aiming specifically to reduce the mutant gene expression.

Chai-Rung Liu, a Ph.D. graduate student of Institute of Biochemistry and Molecular Biology, is the first author of this article. He discovered that transcription elongation factor Spt4, through a yeast genetic assay system, is specifically required for mutant gene expression. Subsequently, using mammalian neurons, Spt4 down-regulation cells showed reduced mutant gene expression and improved cell survival. These results indicate that Spt4 could be a therapeutic target for neurodegenerative diseases.

“Neurodegeneration is a process similar to a speeding car down a steep hill with no brakes; our finding is like a way to reduce the speed and prevent its tragedy.” said Dr. Cheng.

The research is currently directed towards drug development and animal model tests for Spt4 effects on the prevention of neurodegenerative diseases. Dr. Cheng's finding has brought new hope to hundreds of thousands or maybe even millions of neurodegenerative disease patients worldwide.