

# A Step Toward Overcoming Amyotrophic Lateral Sclerosis (ALS), an Intractable Neurological Disease

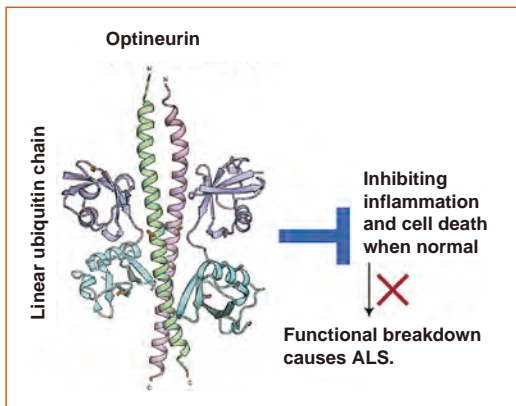


Professor Fuminori Tokunaga

A research group led by Professor Fuminori Tokunaga of the Department of Pathobiochemistry found a part of the pathogenic mechanism of ALS, in collaboration with the Graduate School of Science, the University of Tokyo and the Department of Neurology,

Wakayama Medical University.

ALS is an intractable disease which causes amyotrophy due to motor neuron degeneration and brings difficulties in walking, speaking, and breathing within a few years. No effective therapy for ALS has been established. Therefore, studies that aim to find the pathogenic mechanism and its therapeutic target have been advanced by focusing on familial ALS, which has evident gene mutations. In this study, molecular, cellular, and histopathological analyses were performed by using optineurin mutants, which were originally identified from Japanese familial ALS patients. The results revealed that optineurin binds to a specific protein called the linear ubiquitin chain and controls intracellular signaling involved in inflammation, cell death, and the dysfunction causing ALS. In the future, targeting the linear ubiquitin chain and inhibiting nerve inflammation may lead to an ALS therapy.



The linear ubiquitin chain binding of optineurin and its pathophysiological function

Researchers  
in Focus



**Professor Fuminori Tokunaga,**  
Graduate School of Medicine

The course of Pathobiochemistry led by Dr. Tokunaga from Amami-Oshima, is intended to elucidate the mechanism of diseases with inflammation and help finding therapeutic agents for them. Now he is preoccupied with finding members for his laboratory. He said with a smile, "We have a lot of subjects to study, though we have few members. Come visit us if you are an interested undergraduate or graduate student."

