Researchers at the University of South Florida have discovered the role of long noncoding (Inc) RNA, GAS5, in the metabolic regulation of neurodegenerative diseases.

Alzheimer’s is a multifaceted disease with a complex biology. A higher life expectancy across the globe has caused an increased prevalence of age-related neurodegenerative diseases, especially AD and dementia. More than 90% of AD patients have sporadic, late-onset AD (sAD). Prior research has indicated the role of IncRNAs in orchestrating essential biological networks in human diseases.

Using transcriptomics, scientists at USF have shown that GAS5 is significantly reduced in patients older than 65 years of age. They have further demonstrated that APP/PS1 mice, that exhibit AD pathology, showed decreased GAS5 levels in brain. GAS5 affects multiple pathways promoting the onset of sAD pathology. Thus identifying a decrease in GAS5 may provide the opportunity to diagnose sAD at an earlier stage, potentially before other pathological symptoms occur.

Additionally, our researchers have utilized this finding to identify a small molecule that can significantly increase GAS5 levels. Once deficient GAS5 levels are identified in a patient, this therapy has the potential to serve as an early intervention for sporadic, late-onset AD, and may slow or prevent Alzheimer’s pathology.

Advantages:
- Diagnosis and treatment of late onset Alzheimer’s disease (sAD) through GAS5
- Early detection of Alzheimer’s disease allowing early intervention
- Novel compound for elevating GAS5 levels to treat sAD

Early Diagnosis of Sporadic, Late-Onset AD Through Reduced GAS5 Levels, and its Treatment

Silver Stained PCR Gel of AD Brain Samples, Showing Decreased GAS5 Levels in sAD Brain

Tech ID # 17A041