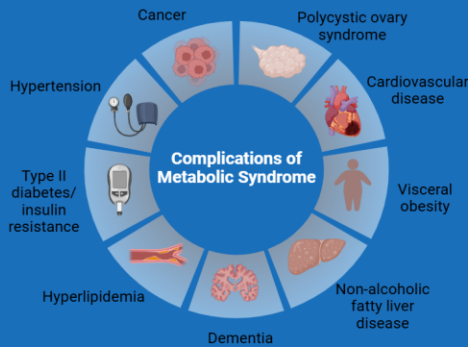


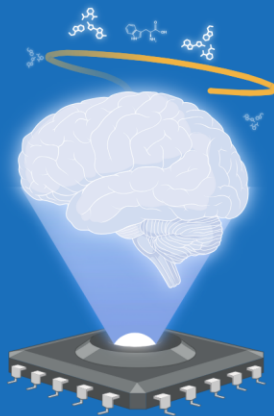
# The Association between Serum Metabolomic Profiles, Gut Microbiota and Cognitive Function in Patients with Metabolic Syndrome

การการศึกษาแบบแผนสารเมตาโบไลต์ในเซรั่มและความสัมพันธ์กับจุลชีพในลำไส้กับภาวะสมองเสื่อมในผู้ป่วยเมแทบอลิกซินโดรม

## Mild Cognitive Impairment and Metabolic Syndrome



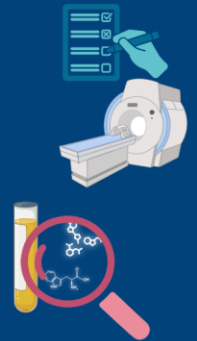
Metabolic syndrome (MetS) is characterized by a cluster of metabolic symptoms including obesity, hypertension, dyslipidemia, hyperglycemia, and insulin resistance. Patients with MetS have an increased risk factor for cardiovascular, cerebrovascular diseases, and cognitive impairment.



Mild Cognitive Impairment (MCI) is an early sign of neurodegenerative processes, characterized by noticeable but not severe cognitive decline.

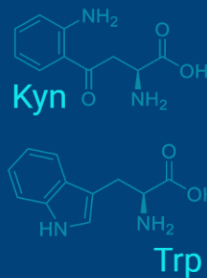
### 1 Background

- Initial screening tests of MCI can be affected by education bias.
- Neuroimaging is costly, and cerebrospinal fluid analysis are invasive.
- Clinical assessments are often conducted following cognitive complaints or clinical syndromes, which is when the disease may have progressed beyond early stage.



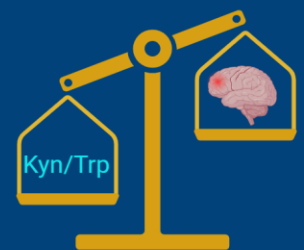
### 2 Research Outcomes

Validated GC-TOFMS and LC-TQMS methods for quantifying amino acids, total fatty acids, and tryptophan metabolites in plasma.



The elevated kynurenine to tryptophan ratio in MetS with MCI suggests a prominent effect of inflammation on cognitive function beyond normal aging.

The prediction performance of kynurenine to tryptophan ratio suggests that it could be a promising predictor of cognitive impairment in treated MetS patients.



### 3 Benefits of the Research

- Publications in international peer-reviewed journals
- Share the insights and findings from the project with academic communities to promote knowledge exchange and foster collaboration.

