SPEECH INFORMATION (For Conference Program Book)	
Topic	從腸到腦：一條您從未發現的聰明之路 (From Gut to Brain: A Smart Path You've Never Discovered)
Abstract	In recent years, research on the gut–brain axis and cognitive function has advanced rapidly, establishing it as a promising strategy for improving cognitive health. Intestinal bacteria produce numerous bioactive substances that can influence the central nervous system, modulate cognitive performance, and even contribute to the development of neurodegenerative or psychophysiological disorders. In addition to traditional probiotics, newer extracellular vesicles (EVs) derived from probiotics have emerged as potent modulators capable of enhancing cognitive function. Brain-derived neurotrophic factor (BDNF) is the most abundant neurotrophic protein in the human brain. It promotes neuronal growth and strengthens synaptic connections between neurons. BDNF plays crucial roles in learning, memory, mood regulation, sleep quality, focus, and cognitive accuracy. The probiotic powder produced from the strain *Pediococcus acidilactici* SWP-CGPA01 is known as ExoBDNF. The complete genome of strain SWP-CGPA01 has been sequenced by our research group, and third-party certification has verified its non-pathogenic nature. Each ExoBDNF colony releases an average of 3.7×10^3 EV particles per hour, with an average diameter of approximately 125 nm. EVs isolated from ExoBDNF contain 52 identified proteins and abundant small RNAs, and importantly, no virulence factors were detected. After ExoBDNF reaches the intestine, the probiotic releases EVs that can travel directly to the brain, where they promote increased BDNF expression in neuronal cells, thereby protecting neural tissue and supporting overall brain health. We conducted a clinical trial at Tri-Service General Hospital (TSGH-IRB No: B202505081) titled *"Effect of ExoBDNF Lactic Acid Bacteria Supplement on Cognitive Functions, Sleep, and Psychological Outcomes."* The key findings are as follows: • Up to **55.2% improvement** in overall cognitive function • Up to **66.7% enhancement** in working memory performance • A **13.3% increase** in cognitive flexibility • A **47.0% improvement** in mental health indicators • A **26.1% increase** in sleep quality