



이름: 조일주 / Il-Joo Cho

직위: 교수 / Professor

소속: 고려대학교 의과대학 / College of Medicine, Korea
University

국문 강연제목: 뇌신호 측정 및 뇌자극을 위한 무선 브레인칩

영문 강연제목: Wireless Brain Chip for Neural Signal Recording and Brain
Stimulation

Abstract

Understanding neural signals in behaving animals and their connection to specific brain regions is crucial for unraveling neural circuits linked to behavior and neurological disorders. Also, evaluating the neurological and behavioral effects of drugs is essential for developing pharmacological. In this presentation, we introduce a compact wireless neural probe system designed for drug administration and real-time monitoring of both behavioral and neural activities in socially interacting mice. We have successfully integrated a miniature pump into the neural probe system, allowing wireless drug injections directly into the brain. Our study demonstrates the wireless delivery of drugs and simultaneous monitoring of resulting neural and behavioral changes. Furthermore, we employ a food competition assay involving pairs of mice, where drug delivery modulates social interaction, and subsequent changes in neural activities are analyzed. By facilitating comprehensive investigations into the impact of drugs on behavior and neural activity, our system opens up new possibilities for research and development in this field.

Brief Biosketch

Before his current role, he served as Senior and Principal Research Scientist at KIST from 2010 to 2022. He earned a B.S. from KAIST in 1998 and M.S. and Ph.D. degrees in 2000 and 2004. His research focuses on neural interface systems for the brain and brain organoids.

2010년부터 2022년까지 한국과학기술연구원(KIST)에서 선임/책임 연구원으로 근무하였음. 1998년 KAIST에서 학사학위를, 2000년과 2004년에는 KAIST에서 석사 및 박사학위를 받았음. 연구 분야는 뇌 및 뇌 오가노이드와의 연결을 위한 신경 인터페이스 시스템임.