



**이름: 손창호/Chang Ho Sohn**

**직위: 조교수/Assistant Professor**

**소속: 한국과학기술원/KAIST**

**기타소속: 의과학대학원/ Graduate School of Medical Science and Engineering**

**강연제목:** exTEM 및 ExR+ 조직 팽창법을 이용한 시냅스 단백질의 나노미터 이미징/Localization of synaptic proteins at nanometer scales by exTEM (epitope-exposed by expansion-transmission electron microscopy) and expansion revealing plus with fluorescence microscopy (ExR+)

**Abstract:** We have developed exTEM, a method combining transmission electron microscopy with tissue-hydrogel hybrids to enable nanoscale imaging of synaptic proteins in situ. This technique enhances immunolabeling through molecular decrowding, allowing us to probe the distribution of various synapse-organizing proteins. Additionally, we've advanced fluorescence-based microscopy techniques for super-resolution imaging of synapses, notably improving the ExR protocol (ExR+) to address limitations in antigenicity for low-expression markers. Our integrated approach, combining TEM and tissue expansion for fluorescence imaging, provides a powerful tool for investigating synaptic protein distribution and architecture at nanometer resolution, with potential applications in studying human brain tissues and protein nanostructures in densely packed environments.

### **Brief Biosketch**

2006 서울대 화학부 학사, 2011 Caltech 화학 박사 (전공: 물리화학, 질량분석학)

2011-2017 Caltech 박사후연구원 (단일세포시퀀싱, 공간전사체학)

2017-2019 MIT 박사후연구원 (조직투명화)

2020-2024 연세대 조교수, 2024-현재 KAIST 조교수

Lab: 공간 멀티오믹스 연구실. 다양한 단일세포, 공간 오믹스 기술 개발. 초고해상도 이미징기법개발

2006 Seoul National Univ. BS in Chemistry, 2011 Caltech Ph.D. in Chemistry

2011-2017 Caltech Postdoc, 2017-2019 MIT Postdoc, 2020-2024 Yonsei Univ. Asst. Prof. 2024- KAIST

Asst. Prof. LAB: Spatial Multi-omics Lab, Development of Single-cell sequencing, Spatial Multi-Omics technologies, Super-resolution microscopic technique.