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**강연제목: 정밀진단을 위한 영상기반 오믹스 기술**

**Imaging-based omics technologies for precision diagnosis**

### **Abstract:**

Recent advances in biomedical technologies have opened an era of omics for research and diagnosis. Presently, these efforts have advanced towards the development of imaging-based omics technologies, with the goal of extracting rich visual information from tissue specimens and living bodies. In this talk, I will address the unmet goals within the fields of imaging-based omics, including connectomics, spatial transcriptomics, and radiomics. I will discuss how tissue engineering approaches can contribute to the development of novel imaging-based omics technologies, particularly by demonstrating our multifunctional medical imaging technology designed for dynamic positron emission tomography. Leveraging a reverse tissue engineering approach, we have implemented a precise 3D virtual tissue platform on which we could develop new theoretical models and principles. This software technology provides diverse novel functional information from a single imaging modality, potentially serving as a functional radiomics tool to facilitate the precision diagnosis of various diseases.

### **Brief Biosketch**

구태윤 교수는 KAIST 의과학대학원의 조교수로 재직중이다. 그는 연세대학교 의과대학을 졸업했고, KAIST 의과학대학원에서 박사학위를 받았다. KAIST 부임 후 포스코사이언스펠로십 신진교수 펠로 및 서경배과학재단 신진과학자로 선정됐다. 구태윤 교수 연구실은 재료·화학공학 및 계산생물학 기법을 이용해 미지의 생체 구조 및 기능을 시각화하고 질병을 정밀진단하기 위한 조직공학 기술들을 개발하고 있다.

Taeyun Ku is an Assistant Professor in the Graduate School of Medical Science and Engineering at KAIST. He received his M.D. from Yonsei University College of Medicine and his Ph.D. in Medical Science and Engineering from KAIST. He has been selected as a POSCO Science Fellow and a Suh Kyungbae Foundation (SUHF) Fellow. His laboratory develops tissue engineering technologies using materials and chemical engineering, along with computational biology, to visualize unrevealed structures and functions as well as for precision diagnosis.