

2026 의생명과학연구소 세미나

- 일시: 2026년 08월 27일(목) 오후 4시
- 장소: 강원대학교 의생명과학관 B-110호
- 제목: Nano- and Micro-engineered Biomaterials Directing Stem Cell Behavior for Regenerative Medicine and Biohybrid Soft Robots
- 연사: 신수연 교수 (Harvard Medical School)

The fabrication of clinically relevant tissue constructs that mimic native tissue architecture and function is a major challenge due to current biomaterial limitations and microfabrication constraints. We overcome these barriers by tuning conventional biomaterials with nanomaterials and bioactive molecules to replicate nanofibrous architecture and the function of the native ECM, subsequently processing these hybrid matrices through an advanced bioprinting platform. This system combines unconventional embedded multi-material bioprinting with programmable microfluidics and an autonomous, AI-assisted visually guided in-situ robotic arm-based bioprinting system to fabricate large-scale cell-laden constructs with complex geometries for volumetric tissue regeneration and chronic wound healing. To sustain these living implants at the defect site, we integrate oxygenating micromaterials that provide sustained oxygen release via hydrolysis over one month. Combined with specific growth factors and radical-scavenging molecules, these self-oxygenating micromaterials significantly enhance cell viability and host revascularization, bypassing traditional diffusion limitations in ischemic tissues and critical bone defects.

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- 주 최: 강원대학교 의생명과학연구소