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국문 강연제목: 신경 및 근육재생을 위한 의료용 전도성 접착제
영문 강연제목: Adhesive and conductive biomaterials for enhanced nerve and muscle repair

Abstract(영문):
Tissue-adhesive biomaterials have emerged as a promising solution for enhancing tissue repair and local drug delivery due to their biocompatibility, tunable mechanical properties, and resistance to delamination on wet tissues. For effective regeneration of peripheral nerve and muscle tissues, which require high elasticity, controlling interfaces with tissue-mimetic hydrogels is crucial for restoring motor function and sensory perception after traumatic injury. This study introduces various hydrogel interfaces with strong adhesiveness to nerve and muscle tissues and electrical conductivity, which effectively promote axon and myofiber growth. The adhesive properties allow for stable attachment without the need for sutures or invasive fixation, reducing complications. Furthermore, combining these conductive, adhesive hydrogels with self-healable, stretchable electronics enables the development of an injectable tissue prosthesis, facilitating closed-loop robot-assisted rehabilitation. Challenges such as long-term stability, mechanical strength, and immune response are discussed, along with future directions for optimizing hydrogel-based therapies in clinical applications.

Brief Biosketch (간단한 이력, 연구/대외활동 소개,국문/영문)
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