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강연제목: 광수용체의 극성 성장과 성숙을 위한 3D 미세구조 스캐폴드

3D microstructured scaffolds to support photoreceptor polarization and maturation

Abstract: Blinding disorders of the outer retina occur when photoreceptors deteriorate or stop functioning. A possible treatment involves injecting donor photoreceptors, but this approach has challenges, including poor control over cell placement, density, and alignment. To address this, a new microfabrication method creates ultrathin, biocompatible scaffolds made from polydimethylsiloxane (non-biodegradable) and poly(glycerol-sebacate) (biodegradable). These scaffolds feature cup-shaped wells that capture photoreceptor cells and guide their axon growth, mimicking their natural alignment. Unlike simple injections, this design ensures consistent organization and polarization of transplanted cells, improving their integration into the retina. Beyond potential therapies, this system offers a scalable model for studying photoreceptor-related diseases in the lab.

Brief Biosketch

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