

세미나 초록

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| 발표 주제 | Bioengineering the stem cell niche in vitro for regenerative medicine |
| 발표 내용 | <p>Direct reprogramming technology offers an alternative approach to generate patient-derived cells for tissue regeneration. Yet, the conventional in vitro cell culture systems frequently fall short in effectively directing cell lineage. This research underscores the profound influence of the tissue-specific microenvironment in stem cell fate determination. Characterized by a complex 3D mix of bioactive molecules, biophysical entities, and a network of cells, the microenvironment stands as a cardinal determinant in cell fate. Tapping into its nuances can redefine bioengineering applications. To simulate this specialized environment, we incorporated tissue-extracted extracellular matrices in a 3D setup, providing an ideal set of biochemical and biophysical signals. This led to the reprogrammed cells manifesting a higher level of mature cell markers, thus enhancing their in vivo therapeutic efficacy. Embracing the capabilities of the tissue-specific microenvironment paves the way for groundbreaking advancements in bioengineering, setting a new benchmark for tissue regeneration research.</p> |