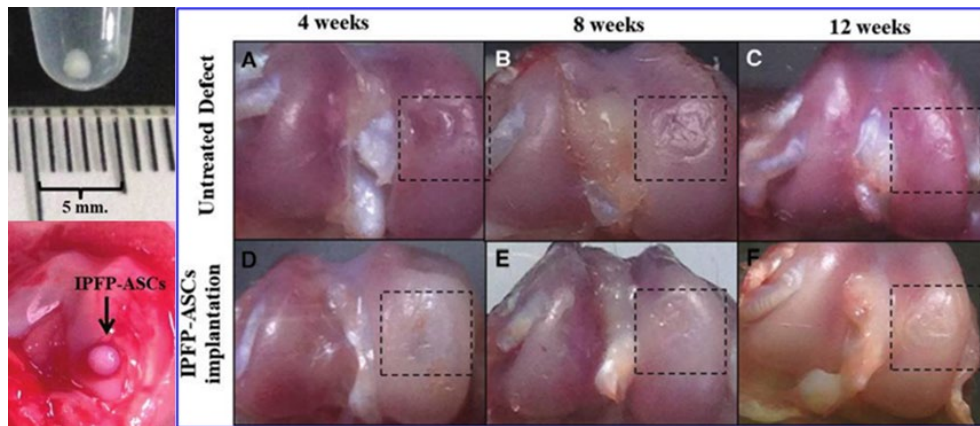




Mahidol University

Scaffold-Free Cartilage Construct from Infrapatellar Fat Pad Stem Cells for Cartilage Restoration

The aim of this study was to determine whether a 3D scaffold-free construct of infrapatellar fat pad adipose-derived mesenchymal stromal cells (IPFP-ASCs) can restore osteochondral defect as well as alleviate pain-associated with this by using the weight distribution test in a rat model. The results showed that the pain-related behavior of untreated defect group can be spontaneously resolved within 3 weeks but the repaired tissue is fibrocartilage, which is weaker than hyaline cartilage. In contrast, although the IPFP-ASCs implantation group also showed the spontaneously resolved of pain-related behavior as similar to untreated defect group, the repaired tissue is hyaline cartilage. Moreover, this characteristic was also maintained for up to 12 weeks post-implantation. Overall, the results of this proof-of-concept study support that human 3D scaffold-free IPFP-ASCs construct has potential benefits in promoting the hyaline-like native cartilage restoration, which may be beneficial as a tissue-specific stem cell for cell-based cartilage therapy. There are several clinical advantages of IPFP-ASC including ease and minimal invasive harvesting, chondrogenic inducible property, and tissue-specific progenitors in the knee.



Reference

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ความเชื่อมโยงกับเป้าหมาย SDGs:
เป้าหมายที่ 3: การมีสุขภาพและความเป็นอยู่ที่ดี