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“An artificial cartilage based on chondrocytes seeded in a 3D matrix of chitosan”

Abstract :

Cartilage is a non-vascularized and non-innervated tissue that does not spontaneously repair after trauma. Inevitably, cartilage degenerates and leads to osteoarthritis (OA). The only way to prevent OA is to repair the tissues immediately after the injury.

Chitosan is a polysaccharide, biocompatible, biodegradable, and, ideally, of plant-based. This biomaterial is known to be a prime candidate for tissue repair, and it is in this context that we developed a 3D chitosan hydrogel matrix for cartilage repair. This matrix provides an optimal 3D environment for culture of chondrocytes, allowing proliferation while preventing their dedifferentiation and thus maintaining the chondrocyte phenotype. The resulting cartilage's gel Kitocart® is ready to be implanted arthroscopically by orthopedic surgeons for complete and definitive repair of traumatic cartilage defects. Patients will be able to recover their daily and sporting activities in a few months.