Material And System For The Therapeutic Treatment Of Joints

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The invention

The present invention relates to the therapeutic treatment of joints. In particular, the invention relates to a composite material and a treatment system for the regeneration of cartilage tissue

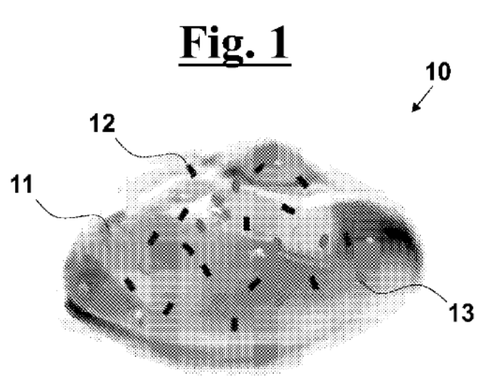
Description of the prior art

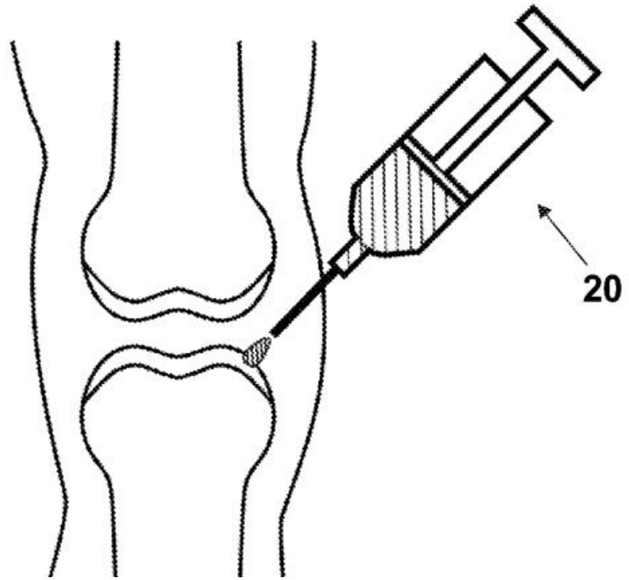
As known, osteoarthritis is currently the most common rheumatological disease: it causes severe motor disabilities and pain, which prevent regular daily life activities. This pathology mostly affects the elderly or obese population, although the cases found in sportsmen of young age following joint injuries are not negligible. Osteoarthritis is a chronic degenerative disease and is manifested by symptoms that are difficult to diagnose in the initial stages but which intensify quickly over time. If left untreated in the appropriate time and manner, the level of disability can gradually increase over time. At the level of the joint, due to this pathology, lesions on the cartilaginous surface and at the osteo-chondral interface can occur. The aggravation of the condition can quickly lead to the final stage which involves the implantation of a joint prosthesis. In physiological conditions, the articular cartilage is responsible for the correct functioning of the joints, distributing the load (function of the «shock absorber») and guaranteeing the necessary lubrication to avoid further problems from rubbing between tissues, Cartilage alterations can cause joint pain, given by the inability of the joint to support the load adequately.

The invention

This invention is a composite material, released by a 3D Bioprinter, which allows tissue regeneration in situ by exploiting external ultrasonic stimulation, without the need for multiple interventions.

Images





Industrial applications

- Minimally invasive surgery;
- Arthroscopic surgery;
- Osteoarthritis treatment;
- Treatment of degenerative diseases;
- Stem cell-mediated regenerative treatment.

Possible Evolutions

The research group is open for discussions with industrial partners interested in licensing the technology covered by this patent.

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