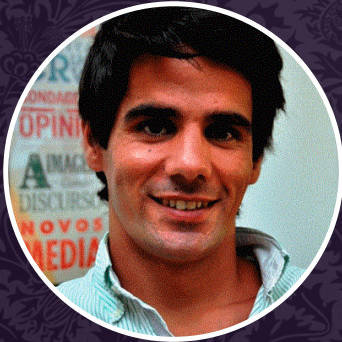


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Novel scaffolds fabrication methods in regenerative medicine: The cartilage challenge

Cartilage is a tissue with a huge complexity, which is present in the human body in three types: Hyaline cartilage, fibro-cartilage and elastic cartilage. Apart from some resemblances, these types are quite different and play unlike roles for human functionality. For instance, the hyaline cartilage, also known as articular cartilage, has a major role in providing joints with a surface that combines low friction with high lubrication. On the other hand, fibro-cartilage (e.g. in the temporomandibular joint disc) spreads the intra-articular load, stabilizes the joints during translation and decreases the wear of the articular surface. Even though, getting a deeper knowledge on cartilage characterization and understanding, bridging the gap between anatomy and physiology, may lead the way for better implants aiming cartilage repair and regeneration. This is of even more interest as cartilage is an avascular tissue of the human body, hence with an extremely low capability for tissue regeneration. However, this ground-breaking issue can only be successful achieved with the establishment of multidisciplinary research teams. Thus, several processes have been tested to assemble tailored and optimized constructs that could endorse cartilage repair and regeneration. These processes advantages, drawbacks, results and capabilities will be presented and discussed.

Biography

Pedro Morouco is specialized in Biomechanics and the Head of R&D Biofabrication Group at the Centre for Rapid and Sustainable Product Development, Portugal. His research activity focuses mostly on products and process engineering, bringing the gap between the lab and *in vivo* applications. He has co-edited 2 books, authored and co-authored more than 100 papers published in books; 40 international journals and 55 international conferences. He is the Member of the Editorial Board in several international peer-review journals and was distinguished with the New Investigator Award 2014 from ISBS. He is the Chairman of the CDRsp Advanced Courses on Regenerative Medicine and Workshops on Direct Digital Manufacturing for Medicine.

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