Bio-functionalized polysaccharide hydrogel patches for applications in tissue engineering

Orianne Domengé, T. Delair, L. David, A. Montembault

Ingénierie des Matériaux Polymère (IMP), Université de Lyon 1

The objective of this work is to develop bio-functionalized hydrogel patches for applications in tissue engineering. The strategy is to associate polysaccharide-based physical hydrogels with an array of proteins such as growth factors, so as to develop biomaterials capable of inducing beneficial effects for tissue regeneration[1].

Thus polysaccharide-based gels were produced varying in composition and characterized in terms of mechanical properties, as, in the final applications, gels will be sutured on the injured tissue. The gels were loaded with Bovine Serum Albumin (BSA), a model protein used for the feasibility and kinetics studies. Results pointed out the impact of the physico-chemical properties of gels on impregnation and release of BSA. The impregnation and retention of growth factors within the gels are currently under investigation.

References:

[1] Tapan Kumar Giri, Amrita Thakur, Amit Alexander et al., Acta Pharmaceutica Sinica B, 2(5), 439-449 (2012)