Design of scaffolds for tissue engineering applications

Christian DEMITRI – *University of Salento*

The design of materials for tissues engineering applications is an interdisciplinary and attractive field. Three-dimensional scaffolds play a fundamental role in the development of new tissues by interacting with cells both in-vitro and in-vivo approaches. Even if there is evidence that polymeric biomaterials can provide enough mechanical and physical properties required for tissue development, in some cases there are inadequate biomimetic property and absence of proper stimuli for the promotion of functional tissue formation. In this context, the design of smart biomaterials that are able to react to specific stimulations could be the new frontier to produce smart biomaterials to be used both for tissue engineering and medical device applications. Hydrogels are unique materials that can be specifically designed to interact with biological systems for a wide range of biomedical applications. This talk aims to explore the use of the hydrogel technology in the biomedical field ranging from the production of scaffold for tissue engineering applications to the design of smart devices to treat and monitor metabolic diseases.