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RGTA based matrix therapy, an innovative solution to heal after acute or chronic tissue injury: From basic science to patient

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Extra cellular matrix (ECM) microenvironment regulates locally our continuous ability to replace dead cells by new cells. This central law of all living is known as tissue homeostasis. Heparan sulfates (HS) are key elements of the ECM scaffold that store, protect and position various cell communication peptides (CCP) in the cellular microenvironment. HS plays a pivotal role in the regulation of the bioavailability of CCP, cell proliferation, migration and differentiation required for tissue regeneration. Tissue injury will lead to destruction of cells and surrounding ECM. CCP released by inflammatory and circulating cells can then promote tissue repair, but with a loss of tissue quality, leaving scars or fibrosis. We have engineered biodegradable nano-polysaccharide mimicking HS, named RGTA for ReGeneraTing Agent. Introduced at the site of injury, RGTA will bind to the matrix proteins of the damaged ECM, and to the CCP produced by healthy neighboring cells, thereby restoring the ECM microenvironment and conditions for tissue homeostasis. This matrix therapy approach has considerably improved the quality of healing in various animal models with reduction or absence of fibrosis resulting in a real regeneration process. The RGTA technology has been validated in clinics and over hundred thousands of patients treated both for corneal and skin ulcers with no adverse effect. The presentation will describe the fundamental aspect and the mode of action of the RGTA technology and illustrate in many surgical indication, the clinical results of matrix therapy RGTA based products and discs sites potential for more application in acute surgery.

Biography

Barritault Denis graduated in Physics, completed his PhD in Biochemistry at Paris University, Post-doctoral in Molecular Immunology at Pasteur Institute and NYU as NIH Fogarty Fellow. He joined INSERM unit in Paris as Developmental Biologist. He made the first description and patents of FGF extracted from retina in 1979 and 1982 as skin and cornea healing agent. He became Full Professor and Head of Research Institute in Cell and Tissue Regeneration. He invented the RGTA matrix therapy technology and illustrated the healing potential of RGTA in many tissue lesion models. Now, as President of OTR3 and Emeritus Professor, he succeeded to bring RGTA to clinics in several products. He is still active in research and is co-author in over 200 publications and 30 patents.

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