

MYcoat: revêtement intelligent pour dispositifs médicaux implantables

MYcoat est un revêtement original qui supprime complètement la formation d'une capsule fibreuse autour des implants. En empêchant le mécanisme à la base du développement fibreux, ce revêtement permet ainsi une meilleure acceptation du corps étranger par l'organisme. Labseed, start-up de l'EPFL à l'origine de cette invention, a été créée en 2009 et est localisée au PSE.

Abstract.

Labseed invented the first coating, which completely suppresses the formation of fibrous tissue around all kinds of implantable devices: **MYcoat**. MYcoat specifically **prevents** the mechanism at the base of capsule formation. Labseed has been incorporated in Ecublens, Switzerland, in 2009. The company is a spin-off from EPFL and is located at the Parc Scientifique (PSE) of EPFL in Lausanne.

Description.

Implantable medical devices (IMDs) are limited by reduced biocompatibility: the body recognizes the implant as a foreign material and builds scar tissue around it. Lack of biocompatibility leads to reduced performance of the devices, pain to the patients, high re-operation rates, augmenting the costs and risks significantly. To increase the biocompatibility of IMDs, we developed a highly innovative coating MYcoat based on a micro-scale, geometrical guide (protein micro-islets) for cell adhesion and growth. Coated devices are sensed as part of the patient's own body, where cells can attach, but are impaired to build scar tissue.

MYcoat responds to the main unmet clinical need in the implantable medical device field and by shifting the cost/benefit ratio in a more favorable direction, it aims to become the main technology to inhibit fibrous contraction.

Innovation and advantages of MYcoat.

MYcoat acts specifically against myofibroblasts, highly active cells that proliferate and growth to occupy tissue defects and replace them with a scar.

This approach combines the highest theoretical and technical innovation with a large spectrum of potential applications. The coating is micro-scaled and does not interfere with the implant production chain (it can be added as last manufacturing step).

Due to these advantages, MYcoat reduces direct and indirect medical costs (cost of medical care), reduces indirects non medical costs (loss of earning, loss of productivity for morbidity and mortality), reduces intangible costs (pain and sufferings).

Stage of development and type of collaboration sought.

MYcoat has been developed and tested at laboratory scale. A patent has been filed.

Labseed positions itself as a company partnering with established implants manufacturers.

Labseed aims to prepare MYcoat technology for the following applications: (1) silicone breast implants and gastric bands; (2) dental implants, (3) orthopaedic implants, (4) implantable pumps (insulin and pain control pumps), (5) post surgical adhesions and (6) wound & nerve healing & regeneration.

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