ArtiVasc 3D

HIGHLIGHT

Vienna,
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Functional *in vitro* fatty tissue

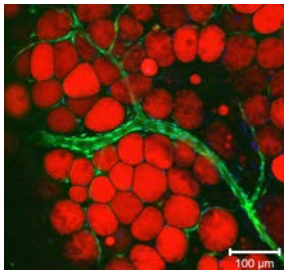

Figure 1: Native adipose tissue.

Within the project, an *in vitro* fatty tissue will be generated using electro-spun scaffolds combined with hydrogel components, seeded with adipocytes and adipose derived stem cells (ASCs).

We evaluate the biocompatibility of generated electro-spun scaffolds and hydrogels to optimize the used materials for the development of standardized composites.

We showed that ASCs and mature adipocytes can serve as an ideal autologous cell source for adipose tissue engineering approaches. Electro-spun scaffolds provide nano- or microstructured three-dimensional scaffolds that resemble the extracellular matrix and support the mechanical stability of tissue. We are able to culture and differentiate ASCs into the adipogenic lineage on such materials. Chemically modified gelatin is a very promising material for in vitro 3D cell culture due to its natural RGD binding sites and solubility at a physiologic pH. Differentiated ASCs and mature adipocytes stay viable and functional for 14 days in a gelatin hydrogel.

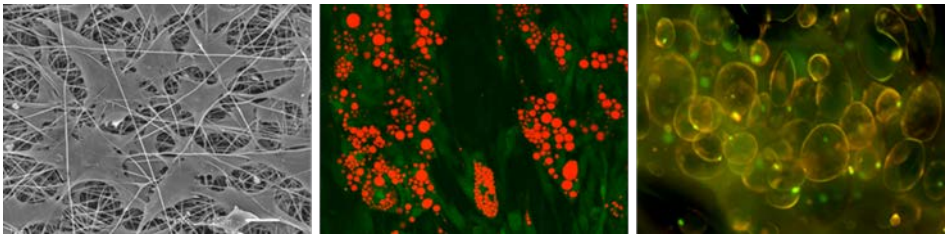
Figure 2: ASCs on an electrospun scaffold and mature adipocytes in a hydrogel.

Electro-spun scaffolds and hydrogels combined with ASCs and mature adipocytes can serve as an excellent basis for the in vitro generation of fatty tissue.

SEVENTH FRAMEWORK PROGRAMME

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