

A microscopic view of a tissue engineering scaffold, showing a network of thin, interconnected fibers forming a porous structure. The fibers are light-colored and stand out against a darker, reddish-brown background.

Tissue Engineering

Alessia Danelon

A microscopic view of tissue, showing various cell structures and colors like orange, yellow, and dark brown, serving as a background for the slide.

Tissue Engineering

Human tissue growth

Interdisciplinary field

Variety of Tissue Applications

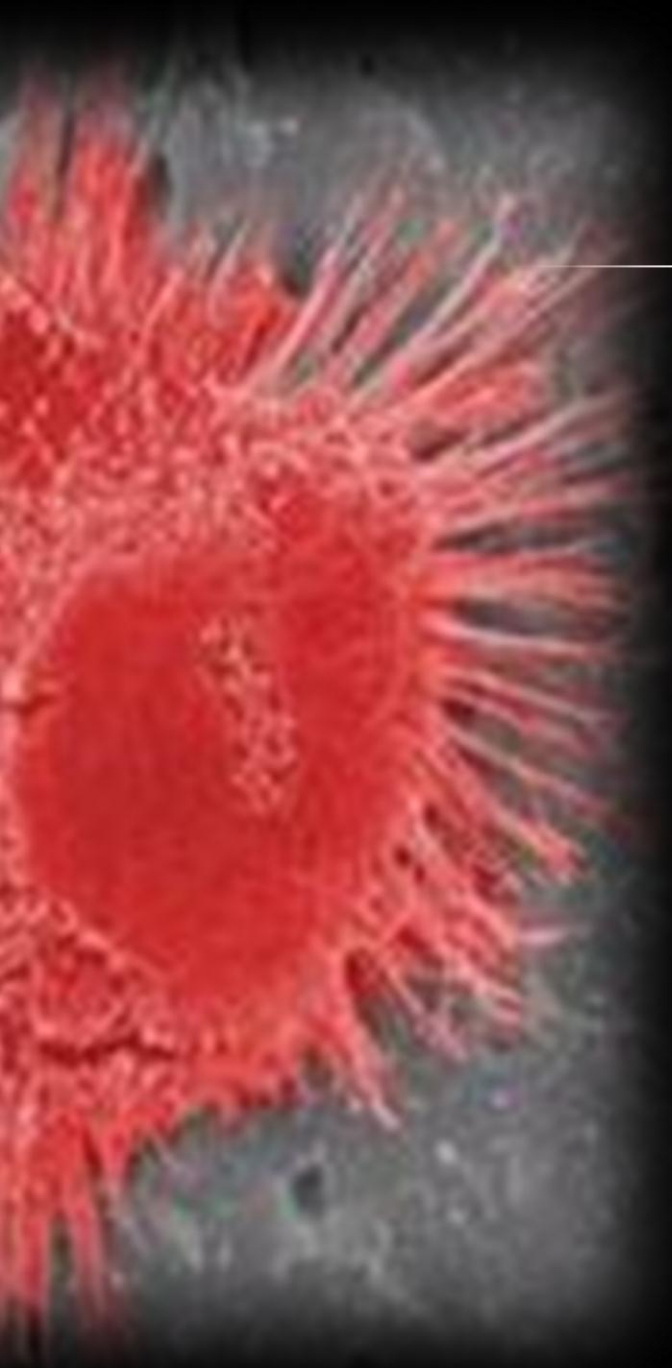
Human Tissue

Diverse cell types

Functionality

Support Structure





Bioscaffolding

Support Structure

Promotes Cell Growth

Highly Engineered

Engineering

Materials

Manufacturing

In Vivo Conditions

Materials

Synthetic and Natural

Matrix structure

Bioresorbable or Permanent





Natural Materials

Collagen, Fibronectin, Glycosaminoglycans

Naturally occurring in the bone marrow and
plasma

Pre-existing matrix structure

Synthetic Materials

Polyglycolic acid, polylactic acid, Polyurethane

Bioresorbable

Tailoring for applications

Stresses

In-vivo vs. In-vitro

Brittle and Ductile

Fatigue



Solid Freeform Fabrication

Base Material

Adhesion

Building Upwards

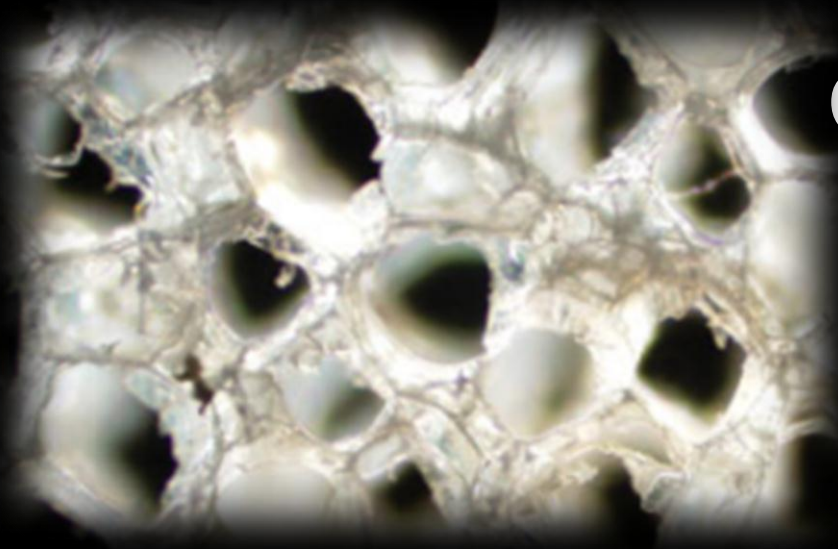


Case Study – Dermal Tissue



Composition

Movement considerations



Collagen

Repercussions

Tissue Overgrowth

Acidity

Pores



Conclusions



Growing Field



Better healing for
patients

Healthy tissue
promotion

Questions

