Israeli 3D Bioprinting Consortium

April 2018

What do we do?

Technology

<u>Co-expression in plants:</u>

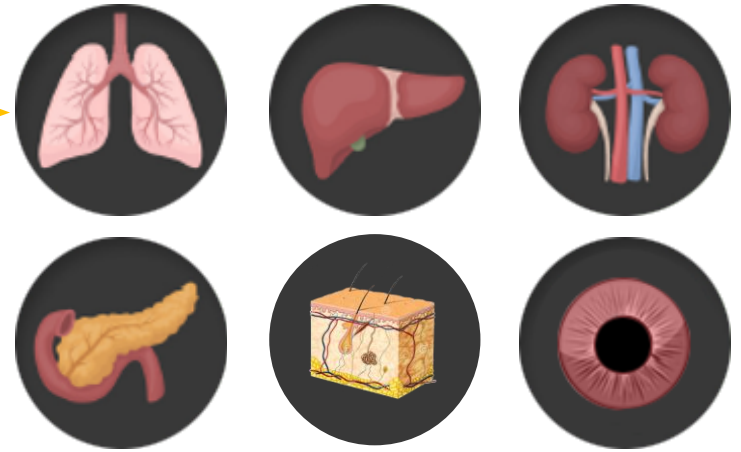
5 human genes for the production of Type 1 recombinant human collagen (rhCollagen)

Products

Market

Regenerative Medicine

3D Bioprinting of organs, tissues, scaffolds



Orthobiologics Wound Care Aesthetics

CollPlant
Revolutionizing Tissue Repair

rhCollagen BioInk – Compositions In Development (In-house and with partners/collaborators)

rhCollagen+

Additives (Synthetic \natural)

Cells

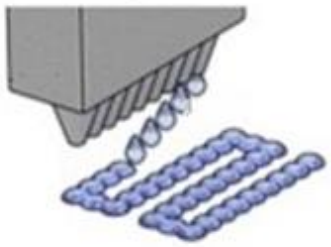
Chemical modification

Growth factors

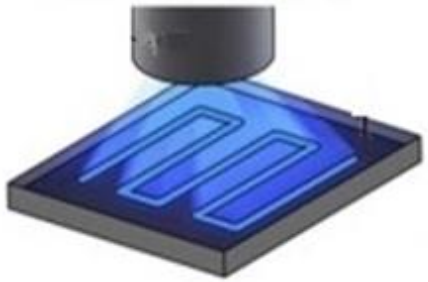
3D Bio-printing technologies

Direct Ink Writing (DIW)

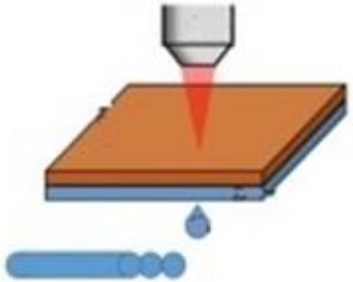
Inkjet



Projection Stereolithography



Laser Induced Forward Transfer



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rhCollagen BioInk Key Attributes

- Optimal rheology at wide temp and pH ranges (viscosity and gelation kinetics)
  - Including room temperature
- Non immunogenic
- Excellent safety and performance profiles in clinical use (rhCollagen)
- Biocompatible – supports viability of different cell types
- Tunable physical and mechanical properties
- GMP, Batch-to-Batch consistency

Goals in Consortium

- Development of BioInk(s) for printing technologies
- Development of BioInk(s) for specific applications

Backup

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CollPlant's Technology

Genetically modified tobacco plants

Collagen Purification

products

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Summary- Plant-derived Vs Tissue Extracted Collagen

Clear advantages over tissue extracted collagen

Better bio-functionality

- Accelerates human cell proliferation
- Faster tissue healing

Superior homogeneity

- Controlled physical/rheological properties
- Reproducibility- batch to batch consistency
- Transparency (not visible)

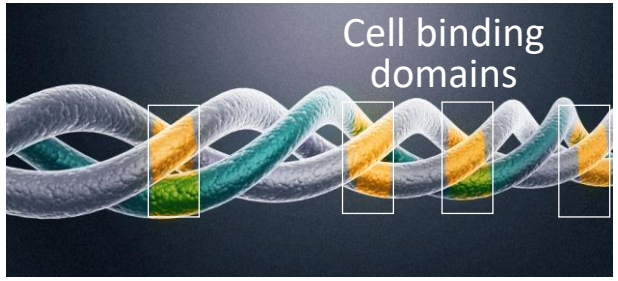
Improved safety and greater purity

- Non-immunogenic
- No foreign body response
- Non-allergenic
- No pathogens

Animal Extracted

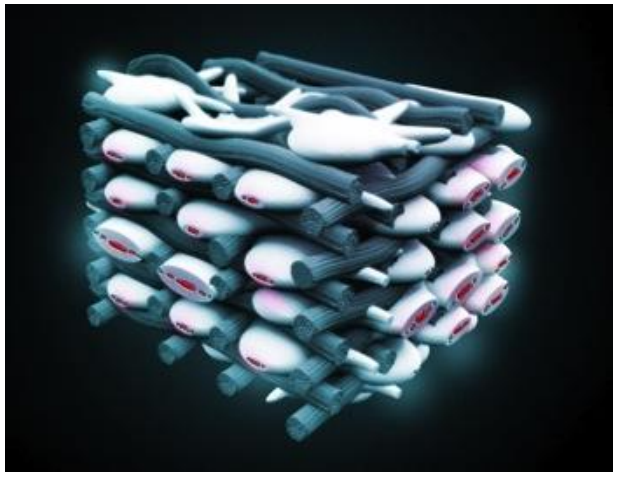
Few cell binding domains due to partially denatured crosslinked collagen

Plant-derived



Native cell binding domains enabled by perfect triple helix enhance cellular attachment

Slow cell proliferation and slow tissue repair
Foreign body reactions (e.g. granuloma)



Fast cell proliferation and fast tissue repair

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