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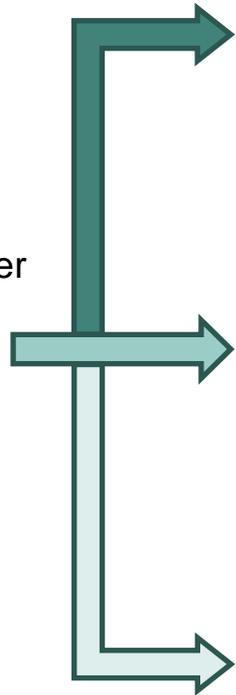
Development of Hydrogel Based 3D Hybrid Structures for Skin Implants Applications

Israel Innovation Authority

**Prof Oded shoseyov's laboratory
Faculty of Agriculture, Food and Environment
The Hebrew University of Jerusalem**

11/4/18

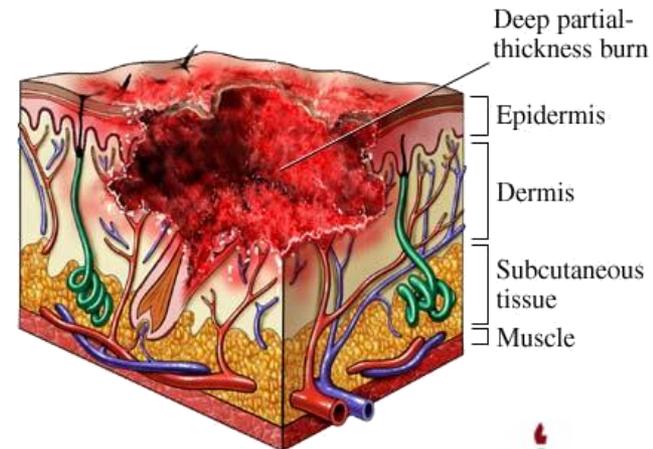
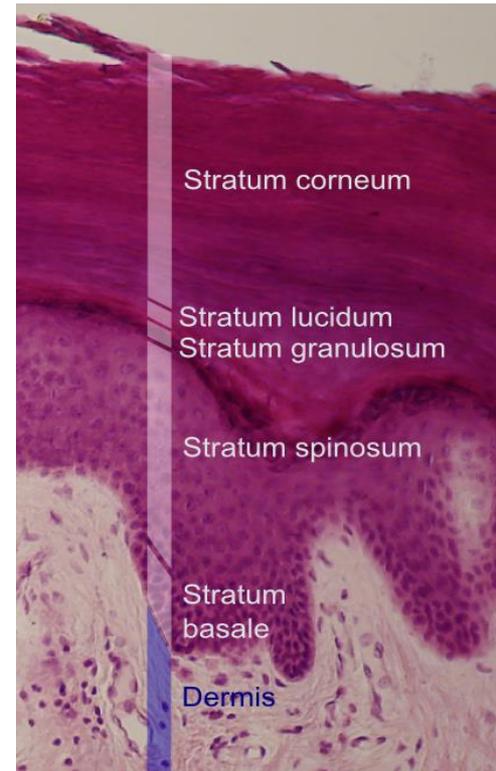
Our Vision



PVA based implant
via extrusion 3D printing

Protein based
secondary dressing
Via jet printing

Perfect adjustment to
both damaged and
healthy skin



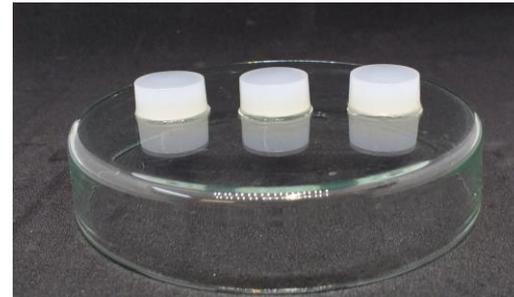
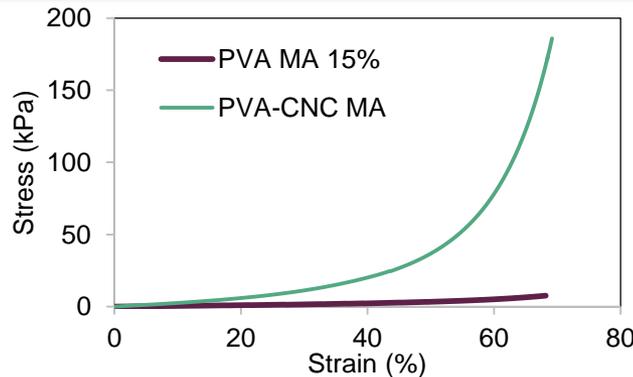
3D Additive Manufacturing (AM) Techniques

Novelty Cryogenic 3D printing of PVA

Printing PVA ink → immediate freezing at the designed structure → applying several nozzles and thermal cycles allows gradient of desired properties



PVA-CNC-MA for extrusion based 3D printing



Young's modulus	kPa (AVG)
PVA-MA	5.24
PVA-CNC-MA	24.99



2D Additive Manufacturing (AM) Techniques

Jet Printing of Keratin and Melanin as the Stratum Corneum

- Sub micron high resolution 2D printing of Keratin and Melanin
- High mechanical properties and water resistance
- Skin tones can be easily adjusted

