



# A significant breakthrough in the quest for cost-effective Tissue Regeneration and Organogenesis



## Technology Highlights:

- **20-fold** improvement in matrix deposition within 48h of culture
- Platform for the rapid production of **numerous tissue types**
- High impact publications due in 2013
- Potential to impact significant markets:
  - Tendon injury costs the U.S. \$150B pa
  - Cell-based therapy to be worth \$96B by 2015 (U.S.)
  - Tendon repair spend of \$60B pa
  - Musculoskeletal repair spend of \$2.1B pa
  - Wound Healing worth \$1.2B

### Market Opportunity

Presently applied solutions in the **surgical repair of tissues** such as tendon, cornea, skin, peripheral nerve, cartilage and bone are limiting patient satisfaction. Autografts, considered the gold standard in clinical practice, is limited by availability in severe injuries and degenerative conditions. Synthetic biomaterials are often associated with peri-implantation fibrosis. Natural polymer-based substitution is of limited strength and allografts or xenografts are associated with potential disease transmission.

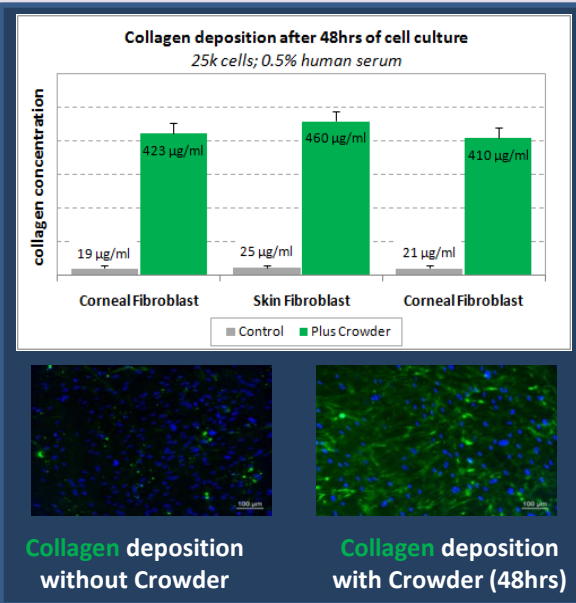
**Cell-based therapies** have the potential to produce tissues *in vitro*, with a precision and stoichiometric efficiency still unmatched by man-made devices. While companies such as Genzyme, Cytograft and CellSeed have already begun to implement this strategy in production settings, the requirement for **prolonged culture times** (e.g. 84 days for corneal cell-sheet; 196 days for blood vessel) severely restricts cost effectiveness. NUI Galway has recently developed and patent-protected a technology that enables a **cost-effective, over 20-fold increase in extracellular matrix deposition within 48h of culture.**

### Stage of Development

The technology's performance has been validated using immunocytochemistry, proteomics and genomics analysis with human skin, lung and corneal fibroblasts; human tenocytes; human osteoblasts; human smooth muscle cells, human neural cells and human stem cells. Preclinical trials are underway for peripheral nerve repair, tendon repair, bone repair and skin repair.

### Principle Investigator and R&D team

Dr. Dimitrios Zeugolis of the Network of Excellence for Functional leads a highly skilled Research team with cutting edge capabilities in Biomaterial, Tissue Engineering, Bioengineering; Nanotechnology and Soft Tissue Repair / Regeneration.



### Objective

We are keen to engage with potential investors and collaborators with an interest in licensing or co-developing high potential technologies.

**If you are interested in learning more about this opportunity please contact:**

**Dr. Seamus Coyne**, Commercialisation Executive  
Ignite Technology Transfer, NUI Galway

✉ [seamus.coyne@nuigalway.ie](mailto:seamus.coyne@nuigalway.ie)

☎ +353-91-495663

📞 +353-87-6642604

