MatrixCell Bio

BIOREACTOR

Bioreactor is a unique and *in vitro* wireless-controlled equipment, providing researchers with biomimetic physical stimuli to a cell-encapsulating bioink for cyclic *in vitro* tissue engineering of weight bearing tissue defects.

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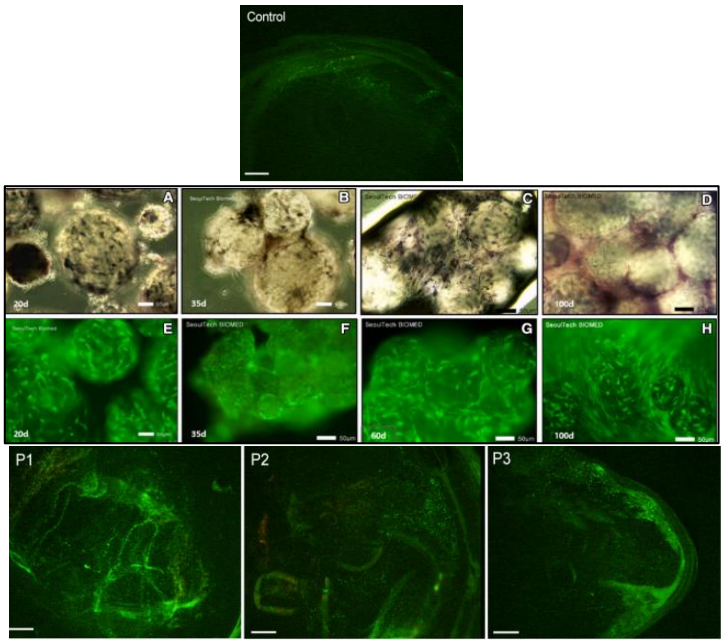
EXPERIMENTAL RESULTS & APPLICATION



|Reference: *Biomater Res.* 2022;26(1):75.

Effect of biomimetic physical stimuli on tissue regeneration

1) Static *in vitro* cell culture

- No dynamic, No compression.

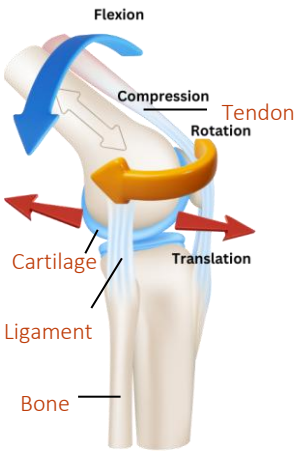
2) Dynamic *in vitro* Bioreactor

- Better cell growth & proliferation compared to static results.

3) Cyclic compression *in vitro* bioreactor

- 2.3mm compression (1N load)
- Diverse pressure heads.

Bioreactor models & their modes of action

Bioreactor	Mode of Actions	Biomimetics
Compression model		Weight-bearing (cartilage)
Twist model		Rotation (tendon)
Extension model		Translation (ligament)

Bio & biomedical applications

- Bio-stimuli tissue regeneration
  - Cartilage
  - Tendons
  - Ligaments
  - Meniscus

Total weight (g) without syringe	Height
30 kg	450 mm

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