Human Embryonic Stem cells for Cartilage Repair and Disease Modelling

UK Regenerative Medicine Platform

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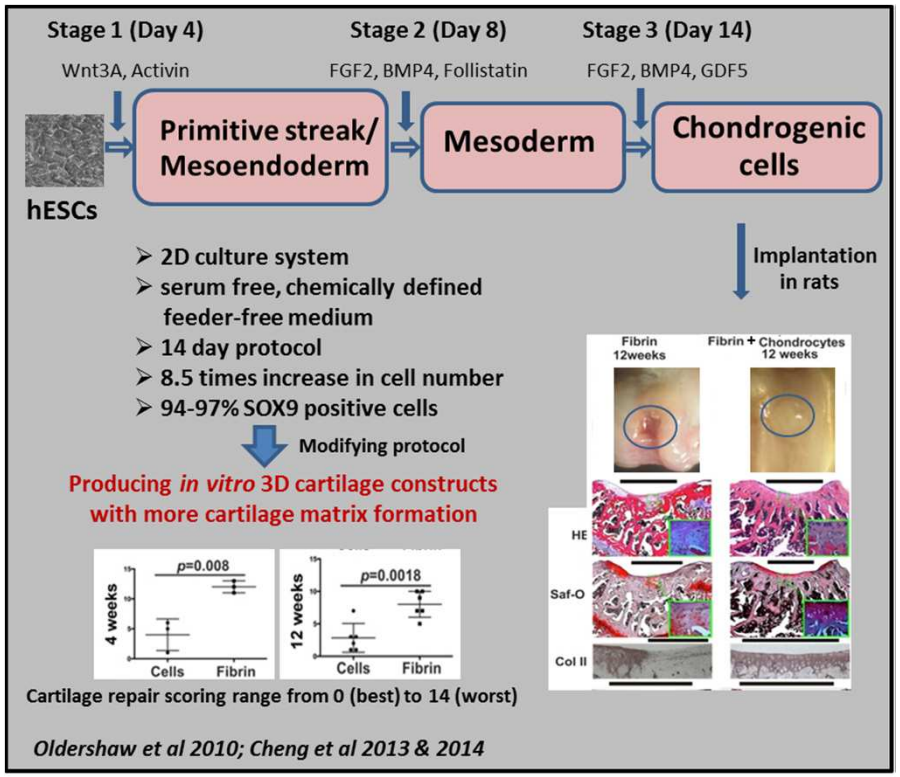

Chondrogenic differentiation

What is it?

- The use of human embryonic stem cells (hESCs) as a promising cell source for treating cartilage damage and for disease models

Strengths

- The ability of hESCs to self-replicate indefinitely
- Efficient serum-free differentiation to chondrogenic cells

Weaknesses

- *In vitro* cartilage matrix production of chondrogenic cells derived from hESCs is lower than that of mature chondrocytes

Potential Applications

- To produce 3D cartilage tissue constructs using a modification of our published protocol
- To examine the effect of slow release of growth factor beads in combination with hydrogel on hESC-chondrogenesis
- Potential for human treatment for osteoarthritis or sport injury