

## **New Scaffolds and 3D Cell Organisation**

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In designing therapeutic strategies for tissue regeneration it is important to recognise that the growth of many tissues occurs within a three-dimensional space and that the architecture of cell organisation is crucial to regenerate functional tissue. In certain circumstances, it may be possible to induce tissue regeneration by the simple administration of a protein or cell therapeutic to a site within the body. However, this is an inefficient method of delivering a very complex and expensive therapeutic. Therefore, we and other groups propose that a scaffold should be used as a delivery device to administer cells/proteins to the site of regeneration **and** to establish a local environment that is optimised for regeneration.

The scaffold may be use to define the local:

- ~~///~~ Pore structure and subdivision of 3D space;
- ~~///~~ Surface properties of the interfaces between cells and scaffolds (include mimicking of extracellular matrix chemistry and biomechanics);
- ~~///~~ Concentrations and release profiles of soluble growth factors;
- ~~///~~ Clustering of cells;
- ~~///~~ Interface with existing tissue.

This presentation will review new scaffolds that are designed for minimally invasive delivery of cell and protein therapeutics.