

Long bone non-union and spinal fusion



UK Regenerative
Medicine Platform

Janos Kanczler (jk9@soton.ac.uk) and Richard Oreffo (roco@soton.ac.uk)

What is it?

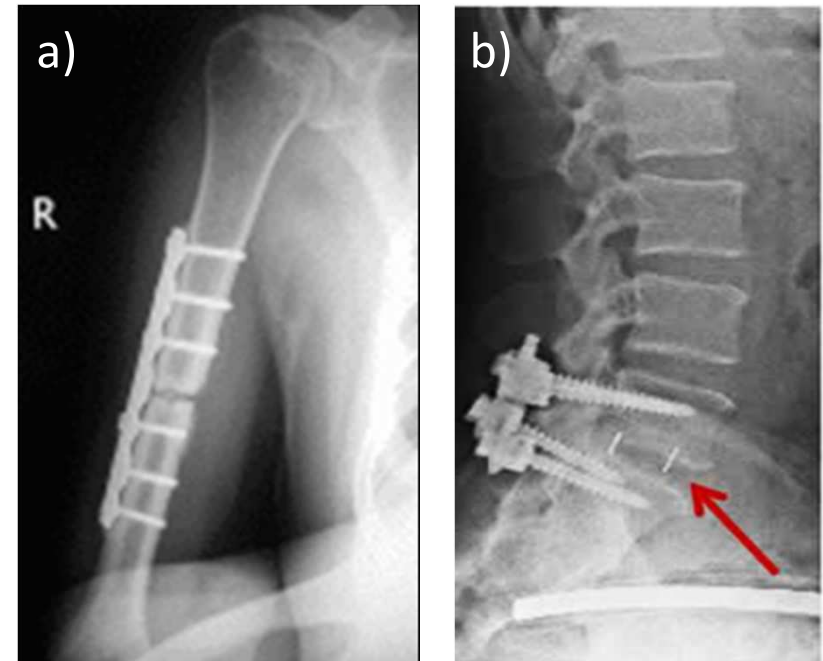
Failure of the bone to unite after fracture and thus the need to generate large amounts of bone to fill the defect.

How do you propose to tackle this?

To apply injectable and mouldable scaffolds of organised (hierarchical) structure to enable intracellular delivery for bone repair

Difficult Challenges

- Protein/Growth Factor delivery to cytoplasm and nucleus from the scaffold
- Temporal and combinatorial delivery of the necessary factors (Transcription or Protein or Growth factor)



- a) Bone non-union – large segmental defect
- b) spinal fusion - cage device placed where the intervertebral disc originally present