University of Basel
Department of Biomedical Engineering

Selected research topics in Biomedical Engineering:
The Future of Personalized Medicine: 3D Printing and Patient-Specific Technologies
Location: Biozentrum, Spitalstrasse 41, Basel, Seminar Room U1.197
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# Biofabrication and Bioprinting Strategies for Musculoskeletal Tissue Regeneration

***Prof. Daniel Kelly***

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**Abstract**

This talk will demonstrate how different musculoskeletal tissues, specifically cartilage, bone and osteochondral defects, can be repaired using different biofabrication and 3D bioprinting strategies. Increasingly complex strategies will be introduced, beginning with relatively simple examples where emerging additive manufacturing platforms are used to produce cell-free biomaterials capable of directing tissue regeneration in vivo, to more complex approaches where cells and/or growth factors are bioprinted into constructs that can be then implanted directly into the body. Finally, more complex biofabrication approaches will be described where biomimetic tissues are first engineered in vitro before in vivo implantation.

**Biosketch**
Prof Daniel Kelly leads a multidisciplinary tissue engineering group based in the Trinity Centre for Biomedical Engineering. The goal of his lab is to develop novel tissue engineering and 3D bioprinting strategies to regenerate damaged and diseased musculoskeletal tissues such as articular cartilage, meniscus and bone. To date he has published over 220 articles in peer-reviewed journals. He is the recipient of five European Research Council awards (Starter grant 2010; Consolidator grant 2015; Proof of Concept grant 2017, 2023; Advanced grant 2021).