

# Manufacturing Engineering Centre, Cardiff Univ., UK

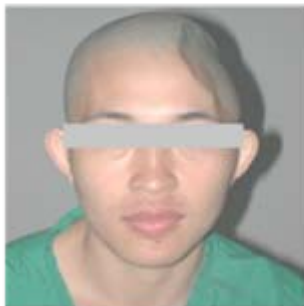
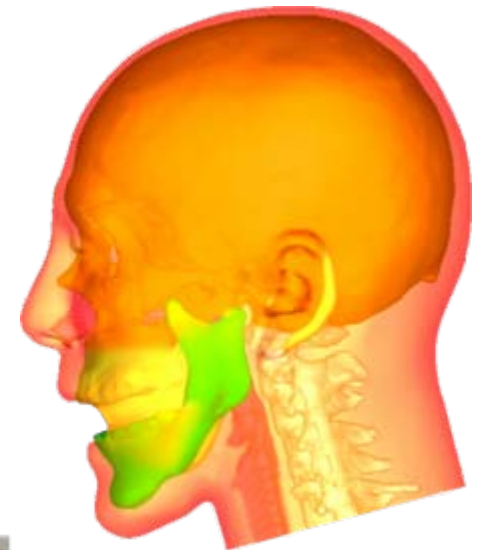
- **Accredited Centre of Excellence**
- **Coordination during FP6 – IST & NMP:**
  - 2 NoEs, 2 STREPs
- **Partnership during FP6 – IST & NMP:**
  - 3 IPs, 3 STREPs, 2 CAs, 1 SSA
- **Over €12.5 million EU funding since 2003**
- **Relevant projects include:**
  - PRIMACORPS: £192,704
  - DELILA: €569,089
  - MicroBridge: £7,577,000
  - µTooling: £608,461

<http://www.cf.ac.uk>



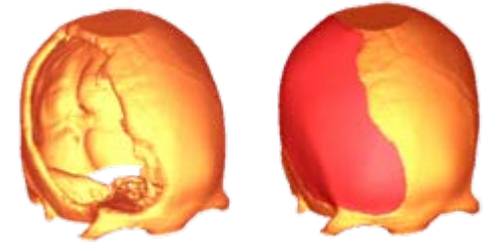
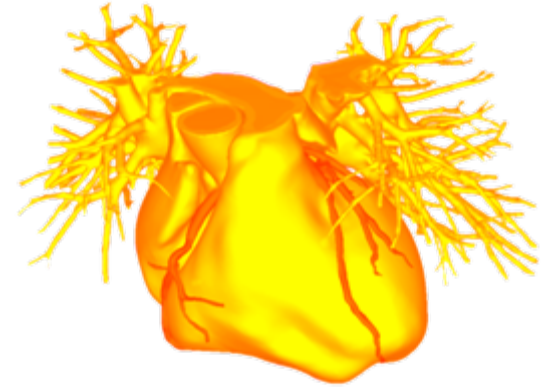
# Design and manufacturing of bioactive Tissue Engineering Implants for Cranio-maxillofacial applications

Development of a new generation of Cranio-maxillofacial implants for both bone and soft tissue reconstruction, in which porous bioactive Tissue Engineering (TE) scaffolds are introduced into the implant to improve **Tissue-Implant interfaces** and to stimulate **tissue growth and expansion**



# Objectives

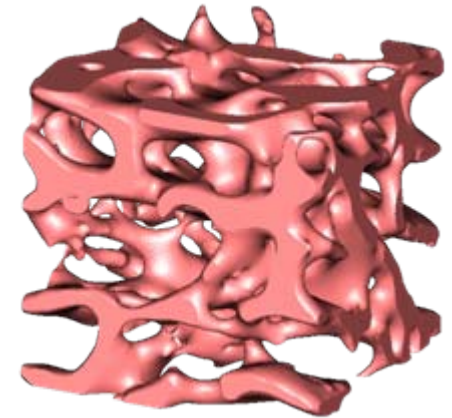
- 1- Personalised (custom-made) implant design to fulfill clinical and technical requirements for the patient.
- 3- Porous bioactive TE scaffolds are introduced into the implant to provide an optimal regulation of cell behavior (adhesion, proliferation, migration, and differentiation), promote the development of functional new tissues and improve tissue-implant interfaces.
- 2- Controlling angiogenesis: Sustained release of certain growth factors (Vascular Endothelial Growth Factors – VEGF, Basic Fibroblast Growth Factor - bFGF)
- 4- Controlling biodegradable and resorbable process to allow replacement by newly formed bone or soft tissues in the long-term.



# Relevance to the Call

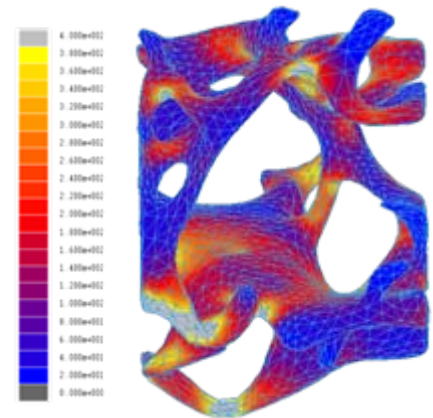
## 4.2.3-1 Highly porous bioactive scaffolds controlling angiogenesis for tissue engineering

- Porous bioactive **bioresorbable tissue-engineered scaffolds**
- To **control cell differentiation** and to **achieve angiogenesis**
- Remodelling of **large bone defects** and improved **tissue biomaterial interfaces**



## Scale

- **Duration:** 3-4 Years
- **Budget:** ~ €8 million (Large scale integrating projects)
- **Consortium:** 8-12 partners



# Additional expertise required

- 1- Biomaterials
- 2- Rapid Prototyping (3D printing)
- 3- Medical image processing (MicroCT or MRI scanning)
- 4- Tissue Engineering: Cell Culture, In Vivo and Vitro Test
- 5- Clinical study: Hospitals (neuro and cranio-maxillofacial surgery)

## Contact details

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