

## PhD position in cardiac tissue engineering

The Institute for Surgical Research and Hospital Management (ICFS) offers a PhD position in the cardiac tissue engineering at the University Hospital of Basel (Switzerland). The PhD candidate will have the great opportunity to work on a newly starting program: Gene therapy-based tissue Engineering approach for chronic CARDiac ischemia (**GENCard**). GENCard aims at identifying a suitable treatment option by inducing a spatially controlled, safe and therapeutic angiogenesis. This goal will be pursued by using a combined approach of cell-based gene therapy and tissue engineering.

The new cardiac research program has been established within the Cell & Gene Therapy group, directed by Dr. Andrea Banfi, which focuses on the molecular control of angiogenesis. In particular, the group uses genetic modification of progenitor cells to achieve controlled expression of angiogenic factors in vivo.

The cardiac program includes the bioreactor-based 3D culture performed in strict collaboration with the tissue engineering group, directed by Prof. Dr. Ivan Martin.

The ICFS, part of the department of Biomedicine of the University of Basel, is characterized by a multi-disciplinary environment with access to state-of-the-art molecular biology and imaging technologies, in close collaboration with the clinical department, providing a unique opportunity to develop bench-to-bedside projects.

We are seeking a highly motivated and enthusiastic PhD student to work on the generation of a sustained and controlled VEGF-release device. MD, MSc in biotechnology, biology or biomedical engineering is preferred. The candidate will have excellent communication skills and ability to work in a team.

Candidates should send a CV and names and e-mail addresses of referees to:  
Dr. Anna Marsano ([amarsano@uhbs.ch](mailto:amarsano@uhbs.ch))

<http://biomedizin.unibas.ch/research/research-group-details/research/researchgroup/cell-and-gene-therapy/>

Start of the PhD program: Jan 2012.

### **List of relevant publications**

1. Ozawa CR, Banfi A, Glazer NL, Thurston G, Springer ML, Kraft PE, McDonald DM, Blau HM. Microenvironmental VEGF concentration, not total dose, determines a threshold between normal and aberrant angiogenesis. *J Clin Invest.* 2004;113(4):516-27.
2. Radisic M, Marsano A, Maidhof R, Wang Y, Vunjak-Novakovic G. Cardiac tissue engineering using perfusion bioreactor systems. *Nat Protoc.* 2008;3(4):719-38.
3. Misteli H, Wolff T, Füglistaler P, Gianni-Barrera R, Gürke L, Heberer M, Banfi A. High-throughput flow cytometry purification of transduced progenitors expressing defined levels of vascular endothelial growth factor induces controlled angiogenesis in vivo. *Stem Cells.* 2010 31;28(3):611-9.
4. Marsano A, Maidhof R, Wan LQ, Wang Y, Gao J, Tandon N, Vunjak-Novakovic G. Scaffold stiffness affects the contractile function of three-dimensional engineered cardiac constructs. *Biotechnol Prog.* 2010;26(5):1382-90.
5. Helmrich U, Marsano A, Melly L, Wolff T, Christ L, Heberer M, Scherberich A, Martin I, Banfi A. Generation of Human Adult Mesenchymal Stromal/Stem Cells Expressing Defined Xenogenic Vascular Endothelial Growth Factor Levels by Optimized Transduction and Flow Cytometry Purification. *Tissue Eng Part C Methods.* 2011.