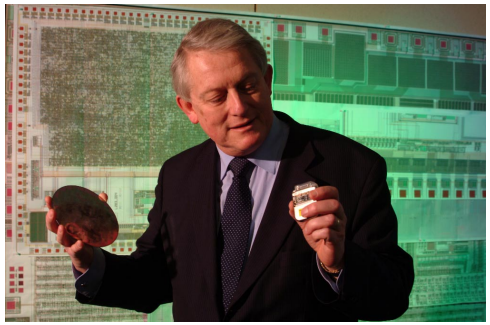
Biomedical Engineering deals with the most complex and fascinating system: the human body. Analyzing and solving problems concerning this system from a technical orientation, requires knowledge and techniques from various disciplines, as you may find them in the **Meuse Rhine Triangle**, the heartbeat of Life Sciences in Europe.



"In 1987, Minneapolis-based Medtronic, Inc., selected Maastricht as the location for its European R&D activities and founded the Bakken Research Center. The immediate proximity of a university hospital with a world-wide reputation for cardiovascular research was an important argument in this decision and the Center has since then grown to about 160 employees who are responsible for a large number of clinical and technical research projects with new pacemakers, implantable defibrillators, neuro-stimulators, stents, heart valves, orthopedic implants, biomaterials etc. throughout Europe."

Fred Lindemans, PhD, Medtronic, Maastricht

- A cluster of 300 innovative companies in medical technology & biotechnology
- 5 top universities and 3 academic hospitals
- Core competences: biomaterials, cardiovascular research and therapies, and biotechnology
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www.heartbeatineurope.org

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Tissue Engineering

Looking for contact to R&D facilities?

- The **Department of Biomedical Engineering** (BME) is a cooperation between the Technische Universiteit Eindhoven, Universiteit Maastricht and Maastricht University Hospital. The division "Biomechanics and Tissue Engineering" of BME works on prevention, diagnosis and treatment of medical conditions and diseases of the cardiovascular and the musculoskeletal systems. *(www.bmt.tue.nl/yp/)*

- Top-notch research in cardiovascular area is also concentrated in the **Cardiovascular Institute Maastricht** (CARIM), an interfaculty institute that performs the full gamut of research from the molecular level through complete patient and population research. CARIM is one of Europe's two leading cardiovascular R&D facilities, having garnered international recognition as a Center of Excellence in the areas of thrombosis, haemostasis, vascular biology and heart muscle adaptation. *(www.carim.unimaas.nl/welcome.htm)*

- The focus of **IZKF Biomat in Aachen** is lying on the performance of efficient structures for interdisciplinary clinical research. Aachen mainly emphasizes biomaterials and material-tissue-interactions in implants. Research on biomaterials is a core competence of the natural sciences and engineering faculties of RWTH Aachen in cooperation with the universities of Maastricht and Liège that enlarge the results of IZKF Biomat. An important part of IZKF is the support of young scientists. *(www.ukaachen.de/content/folder/1237787)*

- **Laboratory of cellular and genetic therapy** (CHU Liège): *(www.chuliege.be/sm/78.html)*
  - Use and conservation of transplants, bone marrow and peripheric blood that contains stem cells
  - Recruting, collecting, manipulation and cryo-conservation of cord blood
  - cell immune therapy with autologous or allogeneic lymphocytes

- In the **Interfacultary center of biomaterials** (CEIB Liège) 13 laboratories of 4 faculties of the Liège University are involved. It is CEIB's mission to promote a pluridisciplinary research activity from the first draft leading to the design of a biomaterial to its final industrial application. Areas involved include education, research in synergy with industries and public research centers, services (material synthesis, characterisation, *in vitro* and *in vivo* testing), consulting activity. *(www.ulg.ac.be/ceib)*

Or interested in contact to companies?

- **Medtronic Inc.** has a well-known facility in the cross-border region of the Netherlands: The Bakken Research Center (Maastricht) employs about 160 scientists, researchers and technical experts, who work in close cooperation with medical specialists to develop new therapies. Tissue engineering, controlled drug delivery and gene therapy are key issues. *(www.medtronic.com)*

- **Matricel GmbH** (Herzogenrath near Aachen) develops, produces and markets innovative biomatrices, cellcarrier- and cultivating systems for applications in medicine und biotechnology. In addition, Matricel serves the medical community as a collagen supplying partner. *(www.matricel.de)*

- **Celonic GmbH** (Jülich) offers services in preclinical development and production of therapeutical recombinant proteins. In a research project Celonic uses the standardization of primary cell culture for a cheap and reproducible production of tissue constructs. *(www.celonic.de)*

- **ZenTech** (Liège) is a biotechnology company specialized in diagnostics and treatment of immune system disorders. The company is focussing on the treatment of vasculitis, auto-immune haemophilia and others. Zentech therapeutic R&D activity is also involved in tolerance induction drugs. *(www.zentech.be)*

- **Gho Pharma BV** (Maastricht) was founded in 1994 to focus on treatments for severely burnt patients, based on oxovanadium mimics for insulin-like growth factor and epidermal growth factor, that appears to counter mediators of secondary tissue damage in burn patients. The company plans to take the technology into the clinic with a target launch date of 2005.