

Biomaterials, implants and regenerative medicine



Biology lab: seeding of cell carrier (nonwoven) for regenerative medicine

Research topics

- R & D in the fields of biomaterials, medical devices, and regenerative medicine
- Certified development/manufacture and accredited testing methods

Range of services

- Resorbable polymers and biomaterials
- Implants
- Cell carriers for regenerative medicine, biohybrid organs
- Additive manufacturing, micro injection molding
- Sensory textiles
- Personalized orthoses
- Wound dressing materials
- Bioactive coatings, e.g. for wound dressings
- Drug delivery systems: Micro-encapsulation and porous fibers
- Antibacterial and antiviral textiles
- Textile-based surgical instruments
- Hospital and surgical textiles

Development of medical devices since more than 40 years

The main focus of research in Biomedical Engineering is on polymeric biomaterials, medical technology, and regenerative medicine. Interdisciplinary work occurs between scientists from the research areas mechanical and process engineering, medical and textile technology, polymer chemistry, and biology. Accordingly, DITF have substantial experience of the development and synthesis

of polymeric biomaterials and of their structure and surface modification for the improvement of the interfacial layer to the biological tissue. These experiences also cover the development of implants, medical instruments, other medical devices, processes for regenerative medicine and targeted drug delivery.

Certified developments at DITF Denkendorf

All developed materials and products are tested according to valid standards. The area of medical devices including the development of new ones is certified according to

ISO 13485. Prototypes for clinical trials can be manufactured in clean rooms.

Global industrial cooperative research

Product developments are mainly achieved in close cooperation with many German and international companies. The research department Biomedical Engineering is

member of several national and international Biomaterial and Tissue Engineering Societies.



Left: Polymer lab: reactor for polymerization of resorbable polymers.

Middle: Nerve guides: resorbable capillary membranes with integrated filaments with longitudinal grooves for the regeneration of peripheral nerves.

Right: Implants: warp knitted vascular prosthesis for aneurism therapy of abdominal aorta.

The German Institutes of Textile and Fiber Research (DITF) form the largest textile research center in Europe. From the molecule to the finished product, the DITF conduct research and develop products along the entire textile value chain, always taking into consideration the corporate processes and business models. A wide range of textile testing services, prototype construction and a pilot factory complete the offer.

At the Technology Center Biomedical Engineering, research and development starts with the raw material and accompanies all innovation steps up to the finished product. All intermediate products, prototypes and series products are certified according to ISO 13485.

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