BIORESORBABLE FIBERS
**UNIQUE VERSATILE MATERIAL PLATFORM**

- (In)organic and hybrid biomaterials
- Adjustable fiber diameters: 20 - 120 µm
- Adjustable biodegradation rates: minutes – days – months – years
- No shrinkage effects in contact with physiological solutions
- Surface modification and biofunctionalization
- Incorporation and attachment of hydrophilic/-phobic drugs
- Fabrication to endless fibers, fiber fleeces and cotton ball like structures
- CE-certification for diabetic ulcer and second degree burns

**VALUE CHAIN FROM ONE PROVIDER**

- **Synthesis**: know-how over 20 years, high versatility in composition, viscosity etc.
- **Spinning process**: unique plant, high variety in process parameters, adjustable mesh sizes
- **Fiber properties**: adjustable fiber diameter, (elasto)mechanically properties and biodegradation rates, no shrinkage under physiological conditions
- **Product design**: versatility in product shapes, packaging, drug delivery while fiber degradation

**APPLICATION FIELDS**

- Regenerative medicine
- Wound management
- Drug delivery systems
- Tissue engineering
- Advanced therapeutic medicinal products (ATMPs)

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**Left**: cartilage tissue on silica gel fibers (safranin-o-staining; arrows = fiber cross section)

**Middle**: human dermal fibroblasts colonized on crossed hybrid microfibers

**Right**: drug-loaded silica gel fiber fleece as a bioresorbable drug-releasing implant

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Theranostic (Nano)Particles
**EXPERTISE**
- (µ- and nano-)particle synthesis
- Customized property profile
- Surface modification and biofunctionalization
- Upscaling and automatization of processes
- GMP-compliant manufacturing

**EQUIPMENT AND METHODS**
- Transmission electron microscopy (TEM)
- Scanning electron microscopy (SEM)
- Dynamic light scattering (DLS)
- Nitrogen sorption measurement (BET)
- Chemical analysis in combination with spectroscopic, gravimetric and photometric analysis
- UV/VIS- and fluorescence spectroscopy and -microscopy

**OFFER TO INDUSTRY**
- Commissioned synthesis, surface modification and biofunctionalization
- Automatization of particle production processes
- Characterization
- Biofunctionalization
- Biocompatibility and functional testings in human 3D in-vitro models
- Adaption of modular designed systems to your application techniques

**APPLICATIONS**
- Immunodetection assays
- Contrast agents for in-vivo imaging
- Drug delivery systems
- Therapeutic active systems

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