Your application area

Particle based
- immunodetection assays
- contrast agent for medical imaging
- drug delivery systems

You need multifunctional particle systems for your work as physician, health professional or medical scientist in university, hospital or in the pharmaceutical and biotech industry? We have the solution for your project!

We offer all-round particle solutions from one source

- Synthesis
- Characterization
- Surface modification and biofunctionalization
- Biocompatibility tests
- Adaptation of modular designed particle systems to your application techniques

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In cooperation with Translational Center "Regenerative Therapies for Oncology and Musculoskeletal Diseases"
Würzburg branch of the Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB
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**Surface Modification**

By conventional functionalization methods we imply reactive chemical functionalities to the surface that allow adaptation into different environments or matrix materials.

Various surface modifications are available, e.g. carboxyl, amine, thiol and isocyanate.

We analyze particle surface coverage with chemical functionalities qualitatively and quantitatively.

**Particle Characterization**

In the field of particle characterization, Fraunhofer ISC provides a comprehensive range of highly specialized methods, processes and devices such as:

- Transmission electron microscopy (TEM) as direct imaging method providing reliable data on particle morphology and particle size
- Dynamic light scattering (DLS) for the determination of the hydrodynamic radius of particle-size distribution
- Nitrogen sorption (BET) measurements for the determination of porosity and surface
- Chemical analysis in combination with spectroscopic, gravimetric and photometric analysis methods for the determination of composition of particle systems
- UV-VIS and fluorescence spectroscopy and microscopy for the characterization of optical properties of luminescent particle systems

**Particle Properties**

- Adjustable properties:
  - Size, shape and polydispersity
  - Crystal structure
  - Optical or magnetic properties
- Narrow particle size distribution
- High particle stability in various environments

We customize the material composition according to your application.

**Biofunctionalization**

Covalent and non-covalent attached biomolecules by bioconjugation methods:

- Antibodies
- Nucleobases
- Selected proteins

We verify the functionality of the coupled biomolecules by subsequent biological assays.

**Our Particle Systems**

- consist of inorganic and hybrid materials
- are synthesized by wet-chemical methods, e.g. sol-gel technology
- have a sophisticated design strategy based on a modular principle

We upscale the particle systems inhouse up to your production requirements.

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Custom made (nano) particle systems