You are looking for a sound and competent partnership to develop novel products in biomedicine, implant technology or pharmacology? Ask us!

We can answer all your questions regarding:

- Surface structuring and functionalization (e.g. in prosthetics)
- Complex 3D structuring of novel materials (e.g. for cartilage reconstruction or tissue engineering)
- Cell behavior analysis (e.g. for better tolerability of drugs and implants)
- Cell assay simulation
- Design and performance of assays (e.g. for drug delivery)
- Drug screening
- Multifunctional nanoparticles in diagnostics and theranostics

Decades of experience in the development of new materials add up with a GMP/GLP compliant infrastructure to make the Fraunhofer ISC your ideal partner for future-oriented medical R&D tasks involving biofunctional materials and assays.

Make your products safe
We perform state-of-the-art experiments and analyses in a high-tech infrastructure.

Find cost-saving alternatives
We provide custom-made solutions for your demands on small-series testing under realistic conditions.

Improve the comparability of results
Ask for our long-term studies with documented standards.

Look for better tolerability
We design surfaces, 3D structures, and cell assays.

Ensure the successful implementation of your idea
We investigate cell behavior, simulate drug effects, and functionalize materials.
Improved cancer therapy
Early diagnosis is crucial to increase the chances of recovery for cancer patients. Additionally, improved therapies with new types of medication are required. Biochemical functionalization enables drug delivery targeted to specific cell types. This prevents damage to surrounding tissues and minimizes adverse reactions.

Nanocarriers
We develop novel particle systems for use in both in vivo diagnostics and drug delivery. Multifunctional particles are modified to specifically affect the targeted cells.

Applications include
- Delivery of poorly soluble active substances
- Targeted drug delivery
- Magnetic nanoparticles: manipulation by magnetic tweezers
- Personalized diagnostics

Optimized scaffolds for tissue engineering
Accidents or chronic diseases may put a limit on a patient’s natural regenerative capacity. Modern medicine offers the chance to replace tissues like ossicles, blood vessels or skin by tissue engineered constructs grown from patient-derived cells. Biodegradable and individually adaptable materials are required as a matrix for the targeted biological and physiological environments.

Complex 2D and 3D structures
We design and fabricate complex 3D scaffold structures with features tunable from the micro to the nano scale. Our materials include biodegradable ORMOCERs, hydrogels and silica-based fibers. These materials are suitable for specific functionalization to match the designated cell environment.

Applications include
- Individualized implants with patient-specific surfaces
- Active implants
- Biodegradable implants
- In- and tissue engineering
- Cell specific scaffolds

From idea to product
To meet your requirements, we design customized 3D surroundings for your investigations on living cells. To this effect, we make use of simulation tools and program individual evaluation routines for a fast and thorough analysis and interpretation of your data. Live-cell imaging enables in-depth characterization of cell migration processes and determination of cell forces. Biochemical analyses serve to investigate intracellular processes and indicate possible immune responses.

Applications include
- Drug screening
- Functional assays
- Cell sorting
- Lab-on-a-chip

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