

Microsystem- and nanotechnology for brain implants and cellular pharmacology

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Better and more efficient healthcare is an essential societal goal. Medical therapies and pharmaceutical drug development are under cost and efficiency pressure. Therapies for major diseases such as Alzheimer's disease are still in research phase. Microsystem- and nanotechnology, often pioneered in the semiconductor and information technology world, can contribute to more efficient and automated solutions in the biomedical field. They combine access to novel materials, miniaturization, device and instrument integration, and IT. Development of such solutions requires a cross-disciplinary approach with daily interaction between biomedical scientists, chemists, physicists, and engineers. Examples of recent innovations in brain implants and cell-on-chip systems for cellular pharmacology will be illustrated.