

Micro Drug Delivery System

Implantable micro drug delivery system based on electrically conductive polymers

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Technology

This implantable, highly exact and freely programmable micro pump opens up new possibilities for innovative therapies. The micro pump is driven by piezoelectric actuators at very low voltage (± 2 V) without addition of salt ions. The pressure covers the physiological pressure area up to 225 mmHg, which allows applications in vivo. This new dosage element works autonomous and the reservoir can be refilled by hypodermic needle from the outside. E.g., the application as a drug delivery system in cancer therapy, pain therapy and in pharmaceutical studies is conceivable.

Innovation

- Operational voltage very low, preferably less than +/- 2 volts
- Movement of the actuator is initiated by providing the same with voltage
- No need to add conducting salts to the medium to be moved
- No contamination of the moved medium
- Actuator provided by electrically conductive polymers
- Tailor-made for in vivo applications
- Extremely small-sized
- Housing may be made of any suitable material, particularly of glass materials, plastics or silicon
- Pulsed or uniform movement
- Only parts of the chamber have to be made by moveable parts

Application

- Micropumps, microvalves
- Lab on chip-devices
- Drug delivery systems
- Dispensers
- Inkjet printers
- Micro-dosing systems of all kinds, etc

Market Potential

- Total Market 2004-2009 (Source: NEXUS III):
- Drug delivery systems: approx. 150 \$ US millions
- Micro pumps are an emerging market

Branch

Medical engineering, Implants

Patent Status

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