

We present an implantable micropump with a miniature form factor and completely wireless operation that enables chronic drug administration intended for evaluation and development of cancer therapies in freely moving small research animals such as rodents” Cobo et al (2016).

Abstract:

We present an implantable micropump with a miniature form factor and completely wireless operation that enables chronic drug administration intended for evaluation and development of cancer therapies in freely moving small research animals such as rodents. The low power electrolysis actuator avoids the need for heavy implantable batteries.

ReTweet if useful... Development of a wireless implantable infusion micro pump
[@ivteam #ivteam](http://ctt.ec/4FyO7+)

Click To Tweet

The infusion system features a class E inductive powering system that provides on-demand activation of the pump as well as remote adjustment of the delivery regimen without animal handling. Micropump performance was demonstrated using a model anti-cancer application in which daily doses of 30 μ L were supplied for several weeks with less than 6% variation in flow rate within a single pump and less than 8% variation across different pumps. Pumping under different back pressure, viscosity, and temperature conditions were investigated; parameters were chosen so as to mimic in vivo conditions. In benchtop tests under simulated in vivo conditions, micropumps provided consistent and reliable performance over a period of 30 days with less than 4% flow rate variation. The demonstrated prototype has potential to provide a practical solution for remote chronic administration of drugs to ambulatory small animals for research as well as drug discovery and development applications.

Reference:

Cobo, A., Sheybani, R., Tu, H. and Meng, E. (2016) A Wireless Implantable Micropump for



Chronic Drug Infusion Against Cancer. Sensors and Actuators. 239, p.18-25.

Thank you to our partners for supporting IVTEAM