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Abstract

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Grant Number: 2R44HL062079-02

Project Title: A Flowmeter With Telemetry for Chronic Animal Studies

PI Information: Name	Email	Title
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Abstract: DESCRIPTION (provided by applicant):Continuous blood flow measurement with implanted sensors reduces the number of animals studied because implanted sensors lower measurement variability and improve accuracy. However, current flowmeter technology requires that animals be tethered to recording hardware. This puts the animal and the surgical instrumentation investment at risk, while the stressful experimental setting may alter flow. Transonic Systems will resolve this problem by developing a miniaturized; battery powered wireless flowmeter compatible with existing, and chronically implantable flow probes. Small enough to be implanted in larger animals or attached as a "backpack" to the rat, it will transmit real-time flow from free-roaming animals. Its accuracy will match current benchtop flowmeters; its low power consumption will enable chronic studies. During Phase-I bench/animal tests demonstrated the feasibility and performance of new flowmeter circuitry that can be converted into a custom low-power flowmeter chipset. The Phase-II research will implement/validate a flowmeter LSI chipset that can be integrated with off-the-shelf telemetry chips, and can run for 100 hours on a coin-cell battery. During Phase-III commercialization we will market the chip-set to research instrumentation manufacturers for integration with existing telemetry systems, and also to the growing number of medical device manufacturers needing low-power flowmetry for implanted LVAD/mechanical heart devices.

Public Health Relevance:

This Public Health Relevance is not available.

Thesaurus Terms:

biomedical equipment development, blood flow measurement, implant, miniature biomedical equipment, portable biomedical equipment, telemetry
 biomedical device power system, longitudinal animal study, microprocessor /microchip, monitoring device
 medical implant science, sheep

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Department:

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ICD: NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

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