PROJECT DESCRIPTION

1 ELEVATOR PITCH

MOTIVATION

Our motivation to develop advanced drug administration tools that leverage microfluidic technology is deeply rooted in our founders' personal and professional experiences. Only one in 10,000 drug candidates will successfully attain FDA approval[1]. Advanced tools are needed for wirelessly and temporally controlled administration of drugs, toxins, neurotransmitters, and other biochemicals for investigation and/or treatment of diseased conditions. This unmet need is critically important in research involving laboratory animals, 97% of which are rodents[2]. Administration of new complex formulations is increasingly a limiting factor in the development process leading to missed therapeutic candidates.

CUSTOMERS

Our target customer profile encompasses researchers in universities, industrial labs, and pharmaceutical labs involved in scientific and medical discovery. We are well-positioned to address the unmet needs of pharmaceutical candidates that require a very specific delivery vehicle. Our **short-term strategy** is to establish a **beachhead market** in **preclinical drug screening/laboratory animal research**, a low capital, accessible, and unregulated market with established sales/distribution channels and customers dissatisfied with existing solutions. **Prototypes have been received from early adopters (including** NX Inc. **early-stage biotechs, and institutional researchers).**

Beyond our initial target customers, we believe interesting additional opportunities lie in the adjacent veterinary animal care industry. Customers in this market are pet owners wishing to provide therapies for similar chronic diseases to those found in humans including diabetes, cancer, arthritis, pain, and obesity. With continued trends toward higher cost veterinary care and consumer demand for long-term efficacious human care, this market offers great potential.

Finally, our pump technology can also be adapted for the human clinical care market. The worldwide human drug delivery market for injectable implantable/wearable devices reached revenues of $12.1 billion in 2010.

VALUE PROPOSITION

Our wirelessly operated micropumps can revolutionize animal laboratory and vivarium operations. The FlexiFlow system value propositions are that it is an enabling research tool for achieving better animal models, more viable drug candidates, and more reliable experimental results. These opportunities accelerate development of more effective drug delivery therapies for the human clinical market. With its unique remote-controlled on-demand dosing and automatic event logging and data storage, the benefits are increased worker productivity, acquisition of reliable data, efficient budgeting and cost management, reduced researching stress, and rapid deployment of digitally records of easily aggregate purchased data from research sites around the world.

THE INNOVATION

The FlexiFlow system will be the first and only implantable dosing system that allows on-demand remote control of drug administration in a unanticipated form factor. This pump is widely applicable to research questions requiring precise and repeated administration of substances without animal handling and comparative effectiveness studies. The FlexiFlow pump leverages an electrolysis-based actuation method that is space saving, power efficient, and robust with only one moving part. The actuation mechanism can be scaled down for use in the mouse or scaled up for use in humans. On-demand adjustment of dosing duration and volume is enabled by electronic control and wireless operation. The refillable reservoir guarantees that the device operation lifetime, and hence experiments, will not be limited by drug volume.