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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health



National Institutes of Health Commercialization Assistance Program
(NIH-CAP)

Company Profile

Industry Sector: Biological research (laser microscopy).

Company Overview: For over 17 years, Prairie Technologies has been a leader in laser-based imaging technology, designing and manufacturing state-of-the-art microscopy products for leading-edge scientists. Systems incorporating our advanced components consistently achieve higher levels of resolution and scanning efficiency than those based on competitive products. We provide individual components that we incorporate into existing systems, or work with researchers to design and deliver complete systems customized for their needs.

Target Market(s): The traditional core market for Prairie Technologies has been researchers in academic and biopharma neuroscience laboratories. Many neuroscience studies require extremely high imaging speed and resolution. We are actively branching out into other areas of cell biology where the imaging requirements are equally demanding.

Key Value Drivers

Technology: With NIMH SBIR funding, Prairie Technologies recently developed and launched a patented Swept-Field Confocal (SFC) microscope that uses a parallel pinhole array to dramatically reduce the amount of time required for confocal laser scanning. This allows researchers using the system to rapidly scan and collect data in defined focal planes within a cell or tissue sample.

Competitive Advantage: Highly trained and experienced US-based engineering team that developed many first-to-market products. Prairie Technologies' products are quickly adopted by leading-edge neurobiology and cell biology research scientists and over time become standard microscopy research tools for all researchers.

Plan & Strategy: Expand sales by investing more in marketing to raise awareness of Prairie's product line, particularly in India, China, and Eastern Europe, where loyal Prairie customers are gaining visibility as microscopy opinion leaders. By investing in additional marketing and overseas customer support, Prairie will be in a better position to maintain a strong market share in the face of follow-on competitive products.

Management

- **Mike Szulczewski**, President and Founder, A pioneer in commercialization of laser microscopy
- **Bill Vogt**, Optical Design Engineer, Internationally respected for his optical design creativity
- **Mike Barrett**, Sales/Marketing Manager, Consistent high achiever of sales goals
- **John Rafter, Ph.D.** Service and Support Manager, Expert in laser microscopy design and applications

Scientific Advisory Board: Prairie has numerous international scientists providing continual market direction and product innovation. A subset of these scientists includes:

- **David DiGregorio, Ph.D.** – Head of the Unit of Dynamic Neuronal Imaging, Institut Pasteur
- **Philip Haydon, Ph.D.** – Professor and Chairman of Neuroscience, Tufts University
- **Kevin Eliceiri** – Director of the Laboratory for Optical and Computational Instrumentation, University of Wisconsin-Madison
- **Sandeep Robert Datta, M.D., Ph.D.** – Assistant Professor, Harvard Medical School

Product Development

Swept-Field Confocal (SFC): The SFC generates images 30 times faster than conventional systems without sacrificing resolution. Working in close collaboration with our customers, we are continually developing new applications and add-ons, such as a Photoactivation Module for triggering localized chemistry changes in cells. Examples include targeted GFP tracking, release of caged calcium ions, and a component for generating spectral imaging maps.

Ultima-V2: Two-photon microscopy systems like the Ultima-V2 allow researchers to use a single instrument to simultaneously image a specimen at one wavelength and trigger localized chemical changes with another. A re-design targeted for Fall 2012 will feature improved optics that increase emission wavelength collection efficiency and a software upgrade that alters the scanning pattern to increase collection time.