



BRUCE TECHNOLOGIES INC
High Performance Radionuclide
Production Solutions

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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: Medical Devices

Company Overview: Bruce Technologies is the industry leader in R&D and sales of high performance cyclotron targets which maximize production of radiopharmaceuticals used in clinical PET/CT, particularly ¹⁸F labeled glucose for diagnosis and therapy evaluation of cancers and Alzheimers. The company manufactures, installs, and supports four commercial product lines in a global marketplace. Our cyclotron target system technology outperforms OEM systems by a factor of two, resulting in advantages to our retrofit customers of lower costs, improved scheduling and reliability, and increased sales of doses of radiopharmaceuticals. We are currently expanding product lines to enable a new business model using higher power cyclotrons to operate larger, centralized, more cost effective distribution centers for PET/CT radiopharmaceuticals. Negotiations are in progress with leading cyclotron manufacturers and PET radiopharmacies who are interested in acquiring the patented technology.
Target Markets: Global existing PET/CT cyclotron base for retrofits, new cyclotron sales by major manufacturers, equity in new distribution centers.

Management

Leadership:

Bruce Wieland, PhD, President and Owner
Matthew Stokely, PhD, Vice President and Chief Engineer

Scientific Advisory Board:

James Lamb, PhD, President of Cyclomedical Applications Group
Peter Holton, Director of Installation, Service, and Training ,
Still River Systems, Littleton MA
Morgan Dehnel, PhD, President of Dehnel Particle Accelerator Components
and Engineering (D-Pace)
Gerald Bida, PhD, Cyclotron Director and Associate Professor, Duke University
Medical Center Department of Radiology

Key Value Drivers

Technology: Bruce Technologies owns three inventions which permit operating cyclotron targets at significantly higher power levels than competing technologies, including a bottom-pressurized boiling target using enriched ¹⁸O water target material, a recirculating target using a miniature regenerative turbine pump and novel external heat exchanger, and a unique geometry for transferring heat from batch targets. Domestic and foreign patents are awarded, and one is pending. An additional invention is being prepared for a provisional patent application, in support of the new business model described in Company Profile which will benefit from new ¹⁸F biotracers under development to replace ^{99m}Tc radiopharmaceuticals now used in SPECT/CT.
Competitive Advantage: Our cyclotron target products outperform competing OEM manufacturer's products by a factor of two or more, allowing a single target system to perform as well as two competitive target systems operating simultaneously. This reduces operating and maintenance costs of the cyclotron significantly. The necessity of purchasing an additional cyclotron to increase production capacity is negated through using our higher performance retrofit technology at a fraction of the cost.

Product Development and Exit Strategy

Product Development: Bruce Technologies has applied for an ARRA NIH RFA called BRDG SPAN, which is a pilot program designed to provide small business applicants who have completed a Phase 2 SBIR with R&D funds to fully commercialize product lines. The application was submitted in parallel with the award of the NIH-CAP program support. It has been reviewed by the NIH and the study section summary report designated an exceptional 90 percentile priority score. If approved by the NIH Council on January 26, the \$1.5M 3-year project will be awarded with a start date of April 1. The goal is to transition by mid-2013 to the new business model indicated in Company Profile and Key Value Drivers.

Exit Strategy: Bruce Technologies will seek to negotiate a part ownership in centralized distribution centers enabled by the resulting higher performance target system technologies, thus obtaining a share of the profits in the new business model. This ownership coupled with revenues from the licensing of IP to major cyclotron manufacturers (Siemens, GE, ACSI, IBA, Sumitomo) will be the exit strategy to develop Bruce Technologies into an attractive buyout candidate.