Jefferson Lab
Thomas Jefferson National Accelerator Facility
Exploring the Nature of Matter

June 13, 2008

Technology License/CRADA Opportunity

Jefferson Lab is currently developing tissue imaging technology for use in surgical procedures. As part of this effort, Jefferson Science Associates is offering a Licensing/CRADA opportunity to interested parties. Your organization is one of several that has either been identified as having an interest in Jefferson Science Associates LLC's **Positron Emission Tomography (PET) and Optical Tissue Sample Imager, including Surgical Interoperative PET Probe.**

This serves as an announcement by JSA (the Management and Operating Contractor of the Thomas Jefferson National Accelerator Facility for the U. S. Department of Energy) of a Licensing opportunity to reduce to practice JSA's technology; thus creating a marketable product for use in surgical procedures to define margins in cancerous tissue. (See abstract attached.)

All interested organizations have the opportunity to review the proprietary Intellectual Property (IP), consult with the inventors, as well as meet with JSA's Technology Transfer staff prior to presenting a proposal. The JSA/JLab licensing procedure can be found at:

http://www.jlab.org/exp_prog/techtransfer/licensing.html

If interested, please contact Dr. James R. Boyce at Telephone No.: 757- 269-7513; or by e-mail: boyce@jlab.org to schedule a review.

All expressions of interest must be received within 30 days of the date of this notice.

Sincerely,

Joseph Scarcello
Chief Financial Officer and Business Operations Manager

Enclosure

Positron Emission Tomography (PET) and Optical Tissue Sample Imager

Background

During cancer surgeries, surgeons strive to achieve removal of all the tumor and without taking out too much of the healthy surrounding tissue. Typically, after cancerous tissue is surgically removed, the tissue sample is sent to a pathology lab to determine if the margins around the cancer are sufficient. This process can take 20-30 minutes or more to get a confirmation that the tumor has been excised and that there are adequate surgical margins. During that time, the surgeon(s) must wait for confirmation. If the margins are not adequate, this process may be repeated several times before the surgery is concluded, adding substantial idle time to the surgery. For the patient, the time lost during this process results in increased time in surgery and extended exposure to anesthesia, which can result in increased morbidity and adverse neurological affects of anesthesia. Increased surgical time also leads to overall increased costs for the procedure.

Invention Abstract

We are proposing a mobile compact imaging system, located in the operating room (OR), and providing faster determination of tumor resection and adequacy of surgical margins. While the final confirmation will be obtained from the pathology lab, such a device can reduce the total time necessary for the procedure and the number of iterations required to achieve satisfactory resection of tumor with good margins. Positron Emission Tomography with F-18 Fluoro-deoxyglucose (FDG) has been shown to be a valuable tool for imaging various cancers. Many cancers demonstrate increased glucose metabolism compared to normal tissues. When FDG is injected intravenously, it concentrates in tumors allowing them to be detected and imaged. In this protocol, before surgery, the patient will be injected with a small amount of a positron emitting radiopharmaceutical such as FDG. When the surgeons have removed the cancerous lesion, they will mark the resected tissue and the surgical bed with dyes to map orientation and for analysis of margins. The Positron Emission Tomography (PET) Tissue Sample Imager uses a pair of small PET cameras to image radiotracer uptake in the resected tissue sample. The cancerous tissue will typically be identified as a focal area or focal areas of increased radiotracer accumulation within the sample. The Tissue Sample Imager will also take a co-registered optical image of the tissue sample. The metabolic PET image demonstrating radiotracer accumulation will be fused onto the optical image for feature correlation and display. Evaluating the fused images in two different 90 degree orientations will allow the surgeon to quickly determine if there are adequate margins of normal tissue around the tumor or if further intervention is required. This process can be completed in just a few minutes in the operating room.