APPLIED BIOTHERAPEUTICS, LLC ("ABT")

"VANISHING SEED™" TECHNOLOGY EXECUTIVE SUMMARY

September 2005

APPLIED BIOTHERAPEUTICS LLC

OVERVIEW

Applied BioTherapeutics LLC ("ABT") is a privately held research and development company based in the southeastern United States. Its principals have deep expertise in the development and manufacturing of novel devices incorporating radiation.

ABT has successfully developed a breakthrough technology platform which is described below. Unlike other brachytherapy technologies, ABT can attach a radionuclide to a bioabsorbable substrate (such as common suture material), creating a multi-use, flexible delivery platform for radiation treatment. The preferred radionuclide is Palladium-103 but others may be used. Palladium-103 can also be attatched to a non-resorbabale device surface. The nature of the nano-technology bonding the radioisotope with a device surface also allows for simultaneous deposition of chemotherapeutic drugs or other therapeutic products in combination with the radioisotope.

The development of a bioabsorbabale brachytherapy delivery platform greatly enhances the number of cancer treatment applications for which brachytherapy can be considered. The ABT technology creates the opportunity for more localized and flexible tumor treatment for prostate, breast, head/neck, lung and other cancers.

ABT seeks commercialization partners with whom to fully develop a variety of applications.

BRACHYTHERAPY PLATFORM / "VANISHING SEED™"

ABT has developed a proprietary, patent pending technology using bioabsorbable suture material substrate as the radiation delivery mechanism. The first application of this technology is the local treatment of tumors. The technical approach, including the manner of radionuclide adhesion to the suture material, creates a novel brachytherapy "seed". The seed itself can be further covered with an additional layer of suture material, creating a housing that seals the radioisotope and provides for a compact delivery mechanism.

While any medically approved radionuclide can be used, palladium is widely regarded as the preferred radionuclide in the seed creation process because of its ease of application and short-half life. Additional proprietary nanotechnology allows ABT to bind the palladium to the suture material in the form of a solid metal.

Additionally, ABT has used its proprietary approach to attach radioactive palladium to a wide variety of substrate surfaces, whether bioabsorbable or not. This makes many "combination" therapies possible, leveraging ABT's platform well beyond traditional brachytherapy into such areas as cardiovascular disease treatment. Thus, for example, radioactive palladium can be attached easily to traditional drug-eluting stents creating a powerful combination therapeutic device. Note that studies have shown that radiation treatment is effective in restenosis mitigation which is currently addressed only with drug-eluting stents.

APPLICATIONS

ABT's novel "vanishing seed" can be developed as a viable and improved substitute for current brachytherapy delivery mechanisms in such areas as prostate cancer, breast cancer, lung cancer, and brain tumors, offering enhanced flexibility of use (because of the bioabsorbable feature) over current, relatively crude, delivery mechanisms.

The proprietary ABT technology adhesion properties use any substrate including metal, mesh, and wire as carriers for nano-size radioactive isotopes. Thus treatments for restenosis, synovitis, some types of arteriosclerosis, and other disease states where radiation has been proven effective may be candidates for such combination therapies.

APPLIED BIOTHERAPEUTICS LLC

EXAMPLE APPLICATIONS

Prostate Cancer

The current market in the U.S. for implantable prostate seeds is in excess of $200MM and forecast to grow to $300MM by 2008. Over 230,000 men a year in the U.S. are diagnosed with prostate cancer and 25% of these cases are currently treated with implantable seeds. The latest studies indicate that over a ten-year period, over 80% of men treated with seeds are free of cancer and over a 12-year period cure rates were 88% with brachytherapy and only 43% with surgery. Current prostate brachytherapy seeds are sealed titanium shells with a radioisotope and marker inside. Most common isotopes used are iodine (60%) and palladium (40%). Currently, typical seeds are batch-produced with a standard radiation dose. ABT technology allows for individual per case dosages, which reduces the amount of seeds required, and reduces trauma to affected organs in patients. ABT's manufacturing process can custom tailor the dosimetry for each patient on a just-in-time basis.

Breast Cancer

The U.S. market for post surgical brachytherapy for breast cancer is in its early growth phase. It is forecast to grow to $578MM by 2008. Typically, after a lumpectomy the breast area is treated with external beam radiation. Recently brachytherapy has been used for localized treatment which has been specifically targeted, thereby avoiding the wider exposure of external beam radiation. New approaches such as "Mammosite" use catheters as a vehicle to deliver a solid seed and a high dose of radiation for a temporary (typically 5 day) period. While this approach validates the utility of targeted local radiation therapy, it is very cumbersome. Mammosite catheters have to stay in the breast for the full five days. ABT's technology envisages far more user-friendly applications. For instance, a radioactive bioabsorbable or traditional "suture" can be placed into the breast cavity with a needle. This "suture" can be easily removed. A bioabsorbable suture can remain in the cavity until absorbed. A suture delivery vehicle can also allow for easier delivery though a catheter.

Other Cancers

The U.S. market for irradiated liver brachytherapy is currently small but forecast to grow to $150MM by 2008. ABT's technology can be particularly useful in various cancer tumors, such as liver, because the bioabsorbable nature of the delivery vehicle (suture material) allows for placement of a strong dose of radiation directly into the tumor. The eventual bioabsorption of the delivery vehicle results in reduced risk of any trauma. The same process would be useful for lung, neck and other cancers.

Other Non-Cancer Applications

Another large market includes the market for various cardiovascular applications. ABT's technology can easily be applied to various cardiovascular-related medical devices thus creating a powerful combination therapy. In addition, ABT technology and intellectual property allow for chemotherapeutic drug and other therapies to be combined directly with radioisotopes on a bioabsorbable or non-bioabsorbable delivery vehicle such as a suture.

ABT Manufacturing Processes

ABT's proprietary manufacturing technology has two major attributes: ease of combination with therapies and facility of dosage customization. Because ABT's proprietary method uses precisely deposited nano-particles on bioabsorbable material such as sutures, dosage along a suture or other delivery vehicle can vary, thus creating a customized set of dosages.

In addition, the nano- deposition of a radioisotope alone or in combination with other therapeutic material allows for the creation of a relatively small "seed" for flexible use in tumor treatment.

Combination Therapies

The use of radiation treatment in combination with other treatments is growing in the oncology community. The ABT technology platform permits the adhesion of drugs, proteins, or antigens directly to the delivery vehicle substrate to create a potent combination therapy in combination with radiation. Such combinations can be readily achieved in ABT's streamlined manufacturing process.

Customized Radiation Doses

ABT's nanotechnology manufacturing processes allow for small amounts of radiation to be placed in varying places along any surface. This feature allows for a customizable dose of radiation along any delivery vehicle. This important development can further target higher radiation doses in specific areas within a tumor or elsewhere. Also other drugs or therapeutics can be deposited between the radiation doses along a surface.

Intellectual Property Portfolio

ABT has developed a broad and growing patent estate related to its technology.

U.S. patents 6,248,057 and 6,575,888 cover bioabsorbable brachytherapy and chemotherapy radiation and drug delivery devices. These issued patents are very broad (encompassing cancer and other combination applications including stents) with very early priority dates.

In addition to the issued patents, ABT has three patent applications that cover: overall manufacturing methods, methods of developing a novel substrate with an integrated radio-opaque marker, methods of depositing radioactivity to bioabsorbable surfaces, methods of bonding PD-103 to bioabsorbable or non-bioabsorbable substrates for brachytherapy, a system for custom planning per patient, and combination therapy using these processes in combination with chemotherapeutic drug delivery.

ABT Technology: Key Characteristics and Advantages

- Flexibility: bioabsorbable delivery vehicle (suture) makes brachytherapy seeds useful in various cancer tumor applications.
- Absorbability: bioabsorbable characteristics allow for frequent re-treatments with no harmful residue remaining in vitro.
- Dose customization: customizable radiation dose through nanotechnology manufacturing
- Dose predictability: less radiation shielding because the radionuclide is not trapped inside a metal shell results in better predictability and constancy in radiation dosimetry.
- Streamlined proprietary manufacturing process includes:
  - Proprietary methods for attaching various radionuclides to a bioabsorbable substrate
  - Proprietary methods for specifically attaching radioactive palladium to any substrate surface.
- Extensive patent protection

ABT proprietary technology offers:

Flexibility

Absorbability

Dose Customization and Predictability

APPLIED BIOTHERAPEUTICS LLC

141 Stevens Ave, Suite 9
Oldsmar, FL 34677
Phone: (813) 854-5100
Fax: (813) 854-5120

info@appbio.com
www.appbio.com