

**Investment Brief for
Microwave Medical Ablation (MMA)
Technology**

**NSW
AREA HEALTH
SERVICES**

Office of Commercialisation

For further information under a Confidential Disclosure Agreement, please contact the following OoC team member in Australia

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Microwave Medical Ablation (MMA) Technology

Summary

Minimally invasive tissue ablation system – devices and software – for electrophysiology (EP) ablation, delivering deeper, continuously linear ablation lesions to the tissue than alternative Radiofrequency (RF) ablation, whilst avoiding contact with the tissue.

Professor David Ross, Specialist Cardiologist, in conjunction with Dr Ananda Sanagavarapu, Faculty Engineering, UTS and their teams have worked on the development of the system and proof of concept testing. The technology is patented.

Market

Heart rhythm disorders or arrhythmias are very common and are believed to cause 500,000 deaths per year in the USA alone.

Benefits

This technology provides for a significantly improved means of reducing arrhythmias in a more reliable and safer way than existing technologies. These disorders are commonly treated with medications which have a low success rate.

Technology Investment Brief

Industry: **Medical Technology**
Proposed Business: **Development of a microwave ablation system to treat cardiac arrhythmias.**

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Microwave Antenna for Medical Ablation (MAMA)

Business Description

A minimally invasive microwave antenna for medical ablation (MAMA) system which we have developed in the cardiac sphere that delivers greater control to the EP/Cardiologist by targeting the cardiac arrhythmia with deeper, continuously linear ablation, whilst avoiding tissue contact. It can also be used in other spheres.

Value Proposition

Current pharmaceutical treatments for arrhythmias have a success rate of ~50%. Whilst current ablation techniques are less invasive than open-heart surgery, side effects such as burning of tissue, and limited efficacy (lesions too broad or too focused on one point) leave open-heart surgery as the only viable alternative. The MAMA system overcomes the limitations of RF ablation and allows for use with standard catheter sheaths inserted via the femoral vein, enabling minimally invasive treatment.

Potential Market Applications of the Technology

Each year, millions of people are affected by heart rhythm disorders worldwide. Arrhythmia claims more than 500,000 lives every year in the USA. Atrial fibrillation (AF), the most common form of arrhythmia, occurs in up to 1% of western populations. MAMA will initially target the cardiac arrhythmia patients with AF. In the USA alone, the cardiac catheter ablation market is valued at \$6B, and as the western population ages, the number of arrhythmia patients will increase dramatically. Potential additional applications of the technology include soft tissue ablation (for example liver, endometrium and brain), and treating malignant tumors.

Competitors

The MAMA technology would be competing with manufacturers of existing RF ablation systems such as Biosense Webster Inc (J&J), Boston Scientific, Medtronic, St Jude Medical. A smaller, more specialized competitor is Cardima Inc. Although the RF ablation market is dominated by these companies, none have the technological advantage, flexibility, and potential of our MAMA system.

Sustainable Advantage

The team for the MAMA system comprises world-leading experts in two critical areas: Prof David Ross is a eminent interventional cardiologist specializing in cardiac ablation. Prof Ross has performed hundreds of cardiac ablations for AF, providing strong clinical expertise to the development of the technology. Dr Ananda Sanagavarapu is one of the foremost authorities in Australia on microwave antennas. The UTS Faculty of Engineering provides an excellent technical resource for the development of the MAMA system.

Status of Intellectual Property

PCT AU04/000392 was filed 26/3/2004, with SWAHS and University of Technology, Sydney (UTS) as co-owners of the IP, with all due diligence and records properly documented and maintained. The Research team has been awarded more than US\$1M from the Australian Research Council (ARC), the National Health and Medical Research Council (NH&MRC), and Industry for development of the MAMA system. The team has conducted preliminary patent searches based on publicly available information. They believe that there are significant advantages to the MAMA system and that the technology does not infringe on other patents held by our competitors. Part of the proceeds from the initial funding would be used to secure and document the IP in the USA, Europe, and other strategic markets.