

PHILADELPHIA (February 11, 2004) - BioSensus, a biomedical company founded by three Drexel University faculty researchers, is developing a commercial prototype of an inexpensive, cell phone-sized device that enables point-of-care and patient self-testing of key blood clotting properties.

Utilizing a miniaturized nanoacoustic sensing technology, the NanoAcoustic Blood Analyzer (NABA) will measure the effects of blood thinning medication, such as anti-coagulants and anti-thrombotics that patients at risk of forming clots must take.

Founded by **Dr. Ryszard M. Lec**, a professor in Drexel's School of Biomedical Engineering, Science and Health Systems, **Dr. J. Yasha Kresh**, a professor of Cardiovascular Medicine and Surgery at the Drexel University College of Medicine, and **Dr. David M. Wootton**, an assistant professor of Mechanical Engineering and Mechanics at Drexel, BioSensus was formed through the University's Office of Technology Commercialization.

Individuals taking anti-coagulant and anti-thrombotic drugs for artificial heart valves and cardiac arrhythmias (atrial fibrillation) must be sure that the medications continue to work and remain within a safe range. Receiving too much of a drug raises the risk of internal bleeding while too little places patients at risk of forming clots that can travel and cause heart attacks, strokes, thrombosis and pulmonary embolism.

Most of these patients require regular laboratory testing to ensure their medication levels remain within an acceptable and safe range," said Kresh. "Some patients could be out of the effective therapeutic range and not know it until an life-treating event occurs. But with the NanoAcoustic Blood Analyzer, patients become empowered by taking their own readings. It gives them a sense of control and immediate feedback. If there is a concern, they can consult with their physician to make sure the medication levels remain in the desired and safe zone.

Rapid point-of-care and in-home testing has not been feasible until now. To monitor patients' blood clotting status, samples had to be collected by trained technicians and sent for analysis, which might take days. Ultimately, 'treating the patient, and not 'laboratory findings' that may be days or weeks old, is the best form of medical care.

The NABA is similar to the finger-pricking devices used by diabetics to measure blood glucose levels. The major difference is the bio-sensing chip in the NABA that takes readings specific for blood coagulation properties, clotting times and platelet function. Most blood analyzers on the market test the therapeutic efficacy of one drug type. The NABA technology platform is flexible and adaptive to changes in and discovery of new drugs used to treat clotting abnormalities. The

biosensor within NABA can be made responsive to targeted proteins in the blood that are actively involved in the clotting and bleeding mechanisms.

Healthcare providers will also see the benefit from the commercialization of the NABA because it will allow them to monitor patients more effectively and more objectively. After taking an on-site reading at a healthcare facility, doctors, nurses or nurse assistants will be able to better identify and diagnose blood clotting disorders and be able to prescribe the desired drug dosage.

Medicare and private health insurance provisions are already in place to provide blood coagulation devices to some patients on anti-coagulant and anti-thrombotic drugs. Kresh believes Medicare will institute similar provision for the NABA because it is in the best interest of all concerned to minimize the potential complications and the resulting and rather costly care.

By supplying patients with our device, chances increase that their medications will remain tightly controlled and not fall out of the therapeutic range," he said. "The adverse events such as excessive internal bleeding or clotting that can occur if they deviate away from the acceptable range would lead to enormous expenditures for the patient's health insurer because, at that point, you're engaging the wider healthcare system and all of its associated and additive costs. The risk of taking anti-coagulant and anti-thrombotic drugs is not insignificant and one should do everything possible to avoid the negative and debilitating effects.

BioSensus received \$500,000 in start-up funding from the Greenhouse fund of BioAdvance, the biotechnology greenhouse of Southeastern Pennsylvania, to produce the NABA commercial prototype, which is due by summer 2005. BioSensus joins MacroArray Technologies and Gelifex, biotechnology companies created by Drexel faculty researchers as recipients of start-up funding from BioAdvance.

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