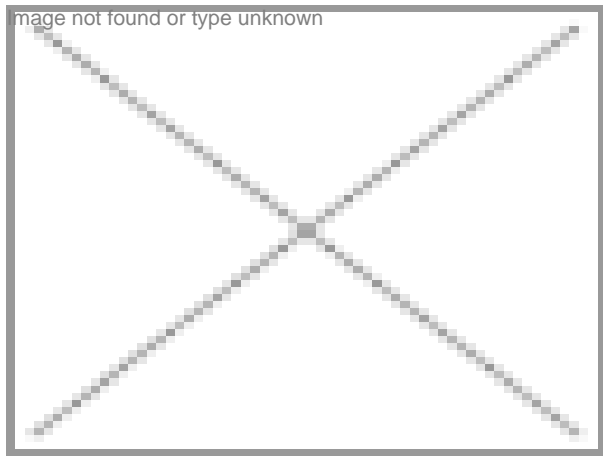


Mission: Diagnosing kidney disorder

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SBIRI funding helped Bigtec Labs to work towards the development of a sensor for the diagnosis of acute renal failure



The acute kidney injury (AKI), a rapid loss of kidney function, is prevalent in a major chunk of the population in India. Generally, the diagnosis is done on the basis of lab findings such as elevated blood urea nitrogen and creatinine, or inability of the kidneys to produce sufficient amount of urine. Therefore, while putting efforts in creating a better diagnostic tool, Bangalore-based Bigtec Labs initiated work on the development of a sensor for proper diagnosis. This project was boosted by the Small Business Innovation Research Initiative (SBIRI) scheme of the

The project handled by Bigtec Labs is for the development of micro electromechanical systems (MEMS) based sensor for biomarker, neutrophil gelatinase associated lipocalin (NGAL), to diagnose acute kidney injury. The objective is to develop a rapid method to identify kidney injury in critical care situations. The problem with the existing alternatives is that these methods provide post facto information on kidney disease or are difficult to perform rapidly.

Founded in the year 2000, Bigtec has made significant progress in the last 10 years. The company has the core competencies ranging from the integration of chemistry, nano-biotechnology and MEMS to genetics and science/engineering, allowing it to set the trend in medical diagnostics and chemical analysis.

However, initially, the company found it difficult to attract investments in the area of MEMS-based biosensors. Talking about the difficulties faced, Mr Chandrasekhar Nair, founder director, Bigtec Labs says, "We started the R&D company with the revenues from our software businesses as the area we were working on (MEMS-based biosensors) was at its infancy and we did not find appropriate venture capital support."

For this project, the SBIRI funding came as a major boost to the company's efforts. Being highly appreciative of the scheme, Mr Nair says, "As this was a high risk project, it was important to get some support for development and SBIRI funding was a good fit."

The company has also utilized the fundings from New Millennium Indian Technology Leadership Initiative (NMITLI), Biotechnology Industry Partnership Program (BIPP).

The Way Forward

Bigtec Labs' handheld point-of-care diagnostic equipment is designed to bring the power of bench-top laboratory equipment to the clinician by providing rapid, low-cost near-care diagnostics. The product is currently under development and can prove to be revolutionary if it comes in the market. Heading towards commercialization, the product is being further tested for clinical use. Since the product is first of its kind, the expectations are very high and may be the technology would open the way for diagnosis of other ailments too.

Commenting on the future of the product, Mr Nair says, "The proof of concept prototype has been developed but lot more needs to be done in terms of ruggedizing the assay and validating it for clinical use."

Bigtec is presently involved in the development of detection systems for malaria, hepatitis B, hepatitis C, chikungunya, HIV and HPV. The company's platform is designed for the diagnosis of infectious diseases irrespective of whether the causative organisms are bacteria, virus, fungi or parasites. The company has also initiated discussions on H1N1 detections at transit points using company platform with a nodal government laboratory.

Rahul Koul in New Delhi