

## The upturned leaf of destiny



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Nature plans intricately to make something happen when it is genuinely aspired for. My journey to IITH and my selection as a Ph.D. scholar for the Bio-sensor laboratory in the Electrical engineering department was the result of such an aspiration. Cancer, the emperor of all maladies caused me a personal tragedy too and I sincerely wanted to work for the prevention and cure of this disease. But as an engineer, I was clueless to contribute to this cause. Then my destiny came into the picture and offered me this beautiful opportunity to work for the development of biosensors for the early detection of Ovarian cancer in women.

In these years when the world was already grappling with life-threatening diseases like cancer, cardiovascular diseases, Alzheimer's, etc the outbreak of the COVID-19 pandemic had ineluctably created a dearth and thereby a dire need to develop a class of biosensors that could be cheaper and do a rapid, sensitive and selective classification/quantification of biomarkers for the early detection and monitoring of diseases.

This would facilitate a timely medical intervention to save a patient's life. Recently in our Littillings lab (biosensor lab), we developed a COVID-19 detection kit that is based on nucleotide detection similar to the RTPCR test and gives results in just 30 minutes.

Along with this, various other formidable projects are going on for the development of portable point-of-care devices to detect and monitor the advent of ovarian cancer, cardiovascular diseases, TBI, Alzheimer's diseases, and eye disorders like (retinopathy of prematurity). The development of biosensors requires the synthesis of nanomaterials, probe immobilization techniques, and clinical/control sample tests.

In some cases, it also requires the integration of sensors with microfluidic channels, android devices, and portable readouts to create a point-of-care device.

In our country where rural areas still do not have access to good medical facilities and equipment for timely diagnosis of diseases.

The research in the development of biosensors to get a substantial breakthrough can save thousands of lives

The Development of cheaper biosensors can also help to understand how far and deeply the demography of the region is affected by a particular disease so that adequate medical measures and social awareness can be created to control and delimit it. Personally, this research domain inspires me immensely and fills me with an indomitable spirit to work tirelessly for this cause.

I strongly feel that to do research is to meditate deeply to understand the riddles of nature and life, to adulate God's creation, and to exploit this knowledge in tandem for alleviating the maladies of living beings in harmony with nature.

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Research in the development of biosensors can save thousands of lives

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**Biosensors lab**

- Cardiovascular diseases
- Ovarian Cancer
- Alzheimer's diseases
- Eye Disorders
- Heavy metal detection