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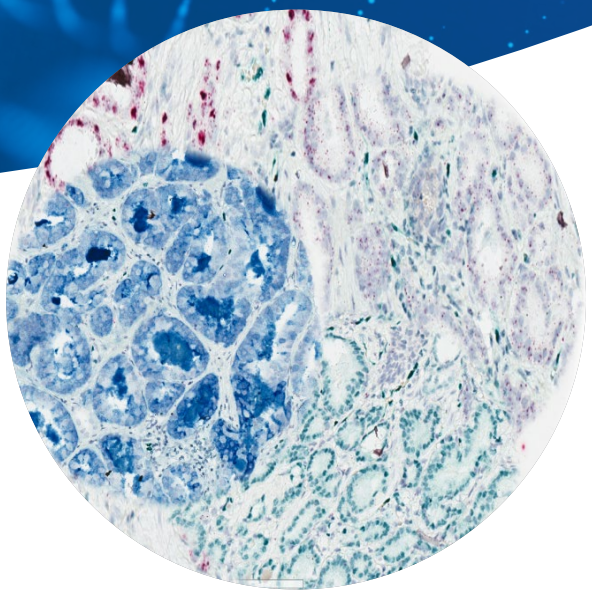
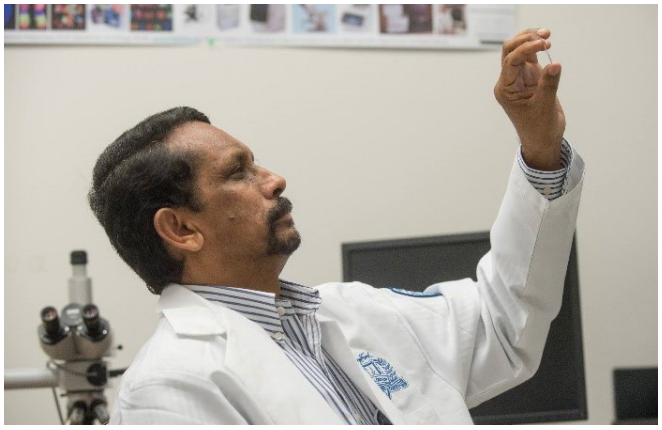


# Scientist at Henry Ford Health is Driven to Put the Brakes on Prostate Cancer

Dr. Nallasivam Palanisamy, Associate Scientist, Department of Urology, Henry Ford Health, Detroit, Michigan, USA

BECKMAN COULTER Life Sciences



Dr. Nallasivam Palanisamy is on a journey of discovery.

His destination? Finding novel biomarkers to improve the diagnosis and treatment of prostate cancer.

An Associate Scientist in the Department of Urology at Henry Ford Health, Dr. Palanisamy has been on this journey for many years, and he's well aware that identifying molecular markers in solid cancers has eluded conventional cytogenetic and molecular methods for decades.

Is there a better approach? He thinks there is, and it entails unbiased, comprehensive genomic and transcriptomic characterization via high-throughput, massively parallel sequencing.

He's particularly interested in discovering and characterizing gene fusions in prostate cancer and understanding their role in carcinogenesis from a translational research perspective. Using cancer-specific molecular biomarkers, Dr. Palanisamy's lab is currently working to understand the genetic complexity of multifocal prostate cancer and its intra- and inter-tumor heterogeneity.

He joined Henry Ford Health, which serves communities across Michigan (USA) and beyond, in 2014. To conduct his research, Dr. Palanisamy and his team have collected a large cohort of formalin-fixed paraffin-embedded (FFPE) samples from African Americans and Caucasians with prostate cancer. Another of the lab's key goals is to understand the genetic diversity in the incidence of molecular biomarkers by incorporating social, economic, and clinical information.

**The pros and cons of FFPE samples**

FFPE samples provide valuable genetic information for gene expression and clinical research. A wide

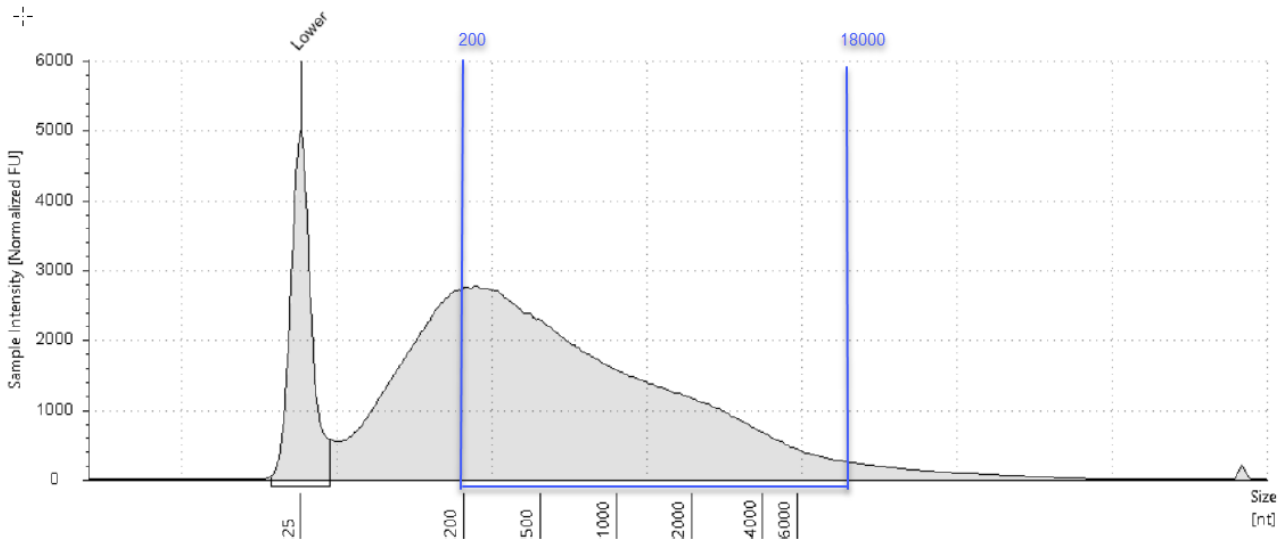



**Figure 1.** Representative FFPE RNA trace with DV200 (85%) highlighted. RNA was extracted from formalin-fixed paraffin-embedded prostate cancer tissue samples using the FormaPure XL RNA isolation kit.

variety of FFPE specimens are available, and one of the major advantages of this sample type is the ease with which researchers can perform multiple tests and procedures on a single specimen.

This advantage, however, comes with a significant challenge. Extracting nucleic acid from FFPE tissues—RNA in particular—can be difficult because the fixation process can result in RNA-protein crosslinking and RNA fragmentation. Either problem can lead to low RNA quantity and quality, which would affect downstream analysis.

## A search for the right extraction chemistry

To ensure his lab was able to obtain high-quality RNA from FFPE samples, Dr. Palanisamy evaluated a variety of different extraction chemistries.

"I would be willing to try any new methods and procedures to improve assay performance, (simplify) experiments (and) generate useful data—on time—without much repetition," he says. "This is especially important because of the precious nature of the (FFPE) biospecimens available for our research."

After comparing results from different extraction chemistries currently on the market, Dr. Palanisamy adopted the FormaPure RNA XL reagent kit from Beckman Coulter Life Sciences, which provides the performance he demands in terms of sufficient RNA yield plus high DV200 values (average DV200 value > 50%, **Figure 1**).

He was also pleased to discover that the streamlined FormaPure XL RNA kit protocol requires minimal training, even for lab techs with limited experience, which made the reagent system easy to adopt and facilitated on-time completion of experiments.

Given the specific nature of Dr. Palanisamy's experiments, he and his team made a few minor modifications to the FormaPure XL protocol. For other cancer researchers interested in using the FormaPure XL reagents for RNA extraction from FFPE samples, he has two important recommendations. The first is to use well-preserved FFPE materials that have been stored, long-term, in temperature-controlled conditions. The second is to consider collecting at least two times more samples than necessary, which can help ensure acquisition of the required number of usable specimens for each set of experiments.

## The journey continues

"Biotech companies like Beckman Coulter Life Sciences play an essential role in research and development efforts," Dr. Palanisamy says.

"For this stage of our prostate cancer research,

we successfully used FormaPure XL to generate whole transcriptome sequencing data for biomarker discovery, and we are still in the process of analyzing all the data."

As for the next leg of his ongoing journey, Dr. Palanisamy reports that he looks forward to trying new methods offered by Beckman Coulter Life Sciences for isolating cell-free DNA.

Learn more about Beckman Coulter Life Sciences Genomic Reagents at **https://www.beckman.com/reagents/genomic**

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