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## Microarray based identification of viral genomes

Procedures for virus identification are currently going through a revolution due to two recent developments. The orthodox methods for virus identification by cell culture followed by secondary confirmation where possible, by immunological techniques have been replaced by PCR based methods. But PCR methods have the added disadvantages that they are extremely sensitive to impurities in the test material, and have very narrow specificity, requiring individual primers for each virus and strain, and therefore atleast some knowledge of the sequence of the viral genetic material. Hybridization to oligonucleotide probes on solid support was developed in the 1990s. However, the true potential for identification of viruses on a massive scale based on sequence of viral genomes did not take off until the development of *in situ* probe synthesis and immobilization techniques. These newer photolithographic techniques allowed for the synthesis and simultaneous immobilization of hundreds of thousands of probes in a single microarray allowing re-sequencing on a large scale by hybridization to identify virus genotypes. Since then, microarrays have been developed that can incorporate over two million probes in a single array. This development opened up the possibility of identifying multiple virus species and genotypes in a single experiment. However, to realize this potential, it is necessary to have a target synthesis method that is independent of the sequence of the viruses present in the test material. The new microarray based method developed in our laboratory at Food and Drug Administration (FDA), avoids PCR amplification with virus specific primers normally used for target synthesis in microarray experiments.

## Biography

Biswendu B Goswami received his PhD in Biochemistry degree from the University of Calcutta (Kolkata) in 1975, followed by a Post-doctoral fellowship from CSIR, India for two years. He came to USA on a Post-doctoral fellowship in the laboratory of the Late Prof. Ernest Borek. He worked also as a Research Associate at Georgetown University Medical Center at Washington D.C. He later joined The United States Food and Drug Administration, and was in charge of the Virology laboratory at the Center for Food Safety, until he retired in 2011. He has published more than 45 research articles and book chapters.

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