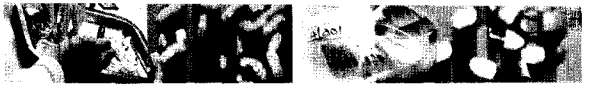

Plasma Nucleic Acids as a New Class of Tumour Markers

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Recently, much interest has been focused on the detection of tumour-associated nucleic acids which are released into the cell-free fraction, i.e., plasma, of the peripheral blood of cancer patients. Thus, oncogene mutations, microsatellite alterations and tumour-associated epigenetic changes have been detected in the plasma and serum of cancer patients. In tumours associated with viral infection, such as nasopharyngeal carcinoma and cervical cancer, viral DNA has also been detected in the plasma and serum. Our group has been particularly interested in Epstein-Barr virus associated malignancies, including nasopharyngeal carcinoma and certain lymphomas, and has demonstrated the value of this approach for the detection, prognostication and monitoring of these malignancies. We have also recently characterised the nature of such circulating tumour-associated viral DNA species and have shown that they consist of short DNA fragments, instead of intact virions.

Our interest has also extended to RNA in plasma. Our results have shown that endogenous plasma RNA is surprisingly stable and is associated with particulate matter in plasma. We have shown that patients suffering from hepatocellular carcinoma and nasopharyngeal carcinoma have increased levels of plasma RNA, when compared with healthy individuals. We have also shown that plasma RNA can be used for the detection and monitoring of colorectal carcinoma. With the use of microarray-based approaches, new plasma RNA markers may be generated for a variety of clinical disorders.