Editorial

Applying genomics to medicine

The development of genomics has been driven by the promise of applying the knowledge and technology enabled by genomics research to medicine. Although the identification of new drug leads remains a challenge, the utilisation of genomics in clinical diagnostics and other related settings is within reach, as clearly demonstrated by three papers in this issue of *Human Genomics*.

In the past decade, the microarray-based technologies have emerged and have been proven to be effective in many fields of biomedical research. Are these technologies ready for prime time in the realm of clinical medicine? In this issue, Tezak *et al.* present the US Food and Drug Administration's perspectives on the potential of microarray-based technologies in clinical applications — in particular, on the issues associated with the translation of nucleic acid microarray devices to *in vitro* clinical diagnostics, including expression profiling, genotyping and comparative genomic hybridisation.

Another application of genomics is to infer personal genetic ancestry, which has become increasingly important in certain medical and forensic situations. Ekins *et al.* have explored the possibility of inferring genetic ancestry and assigning unknown individuals based on the genotypes of 377 autosomal markers, and have shown that a sufficient accuracy can be achieved.

Also in this issue, Parr *et al.* review the potential utility of somatic mutations in mitochondrial DNA as biomarkers for early cancer detection. They have explored such markers in identifying and monitoring neoplasia and malignant transformations in prostate, breast, colorectal, skin and lung cancers.

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