Precision medicine arrives in the clinical laboratory

RANDOX
MOLECULAR DIAGNOSTICS

The clinical laboratory has become central in the delivery of precision medicine, where the advent of molecular biology has revolutionised the diagnosis and treatment of diseases. Modern DNA and RNA testing offers many advantages over traditional methods for the detection of diseases, where the focus is improving the patient care pathway.

Embracing molecular diagnostics (MDx) has facilitated more streamlined workflows, delivered more accurate diagnoses, accelerated the patient result turnaround time and is enabling the delivery of targeted therapies. These advances have placed an increasing emphasis on diagnostic laboratories and their key role in equipping clinicians to make better and quicker decisions about the right treatment for each patient.

At the forefront of diagnostics, Randox Laboratories have utilised their pioneering multiplex Biochip Array Technology (BAT) within their new range of molecular diagnostic assays, which have been developed specifically to meet the needs of clinical laboratories performing molecular testing.

Randox MDx arrays are a combination of innovative PCR priming technology and biochip array hybridisation, where tethered biochip probes permit detection of and discrimination between multiple PCR products. The spatially discrete test region (DTRs) facilitate highly multiplexed profiling of the patient sample, allowing 23 tests and two control tests to be carried out on a single biochip.

Utilising this innovative technology, Randox Molecular Diagnostics offers a range of molecular arrays and assay formats, including SNP genotyping, gene expression, pathogen detection and mutation detection, across several key therapy areas, for clinical and research use.

Within infectious disease, the CE-marked STI Multiplex Array rapidly screens for the presence of 10 viral, protozoan and bacterial STIs simultaneously, identifying primary infection whilst also detecting any secondary or asymptomatic co-infections, which can often be missed. The Respiratory Multiplex Array, which is also CE-marked, simultaneously detects 22 respiratory bacterial and viral pathogens from a single sample.

Familial Hypercholesterolemia (FH) Arrays I & II are rapid, accurate diagnostic tests which enable simultaneous detection of 40 FH-causing mutations (20 mutations per array) within the LDLR, ApoB and PCSK9 genes, commonly implicated in cases of suspected familial hypercholesterolemia.

*KRAS, BRAF, PIK3CA** Array offers targeted mutation profiling of key oncology mutations, predominantly involved in colorectal cancer, but also implicated in other cancer types such as lung and breast cancer. Whilst the *PIK3CA* targets are for research use only, the *KRAS* and *BRAF* assays are CE marked for routine clinical use.

For research use, the Randox Cardiac Risk Prediction Array simultaneously genotypes 19 SNPs for reliable coronary heart disease risk assessment within one day.

With increasing demand being placed on clinical laboratories, Randox Molecular Diagnostics offer unparalleled cost, time and labour saving testing across a range of therapy areas to meet laboratory needs, with many more applications currently in development.