TwistDx™ blog

Bringing you the latest ideas, opinions and news from the RPA community.

Who are the innovators pioneering the future of RPA?

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TwistDx Insights

The future is difficult to predict, but, as CEO, I am often asked about a vision for the years ahead and the growing role RPA can play. There is already much evidence to suggest a broad uptake of the technology, with over 200 publications, and I'm delighted to see the growing adoption of RPA as customers see the benefits over competing technologies, thanks to its robustness, sensitivity and speed. In truth, the future of RPA belongs to the scientists, engineers and entrepreneurs who are exploring its potential across diverse sectors, from infectious diseases and plant pathogens to water hygiene and antibiotic resistance.

Developing fully deployable, democratised, remote testing has been at the heart of TwistDx since the company started. Offering affordable consumables is one thing, but removing the cost of hundreds of thousands of pounds for equipment to do the test is critical to broad deployment. Whether in the local pharmacy or in countries lacking adequate medical provision, RPA technology may enable us to dispense with instrumentation almost entirely, and its isothermal requirements eliminate the need for a thermocycler.

Two of the innovators in our video series are enjoying the benefits of RPA in point-of-need situations. Dr Ahmed Abd El Wahed and his team at the University of Göttingen are pioneering the use of RPA to develop a fully-mobile lab-in-a-suitcase for testing neglected tropical diseases, including Ebola and dengue fever. In a similar vein, colleagues at the University of Greenwich's Natural Resources Institute (NRI) have developed a prototype RT-exo RPA assay to enable the detection of *Yam mosaic virus* that decimates crop yields in West Africa, offering a solution that could lead to increased economic prosperity.

A second exciting and developing area is digital microfluidics, involving the controlled movement of liquids along microfluidic channels. PCR is a challenge in these sorts of systems, but RPA technology offers a great opportunity to carry out PCR-like activities in tiny droplets, as a team at the University of Southampton are discovering. Antibiotic resistance is a growing concern, and a recent report recommends that antibiotics are no longer prescribed without a fast diagnostic tool to detect resistant genes in a DNA sample. The research group has developed a rapid, point-of-need concept using digital microfluidics, which can detect a single copy of an antimicrobial-resistant gene present in a DNA sample in only 15 minutes, avoiding time-consuming cell culture techniques.

We had high hopes when we started developing RPA in 2002, but we could not have anticipated the widespread and innovative applications we see today. RPA is fast establishing itself as being ahead of the field, thanks to the hard work and pioneering spirits of our customers, and we are excited to see the future applications yet to be discovered.