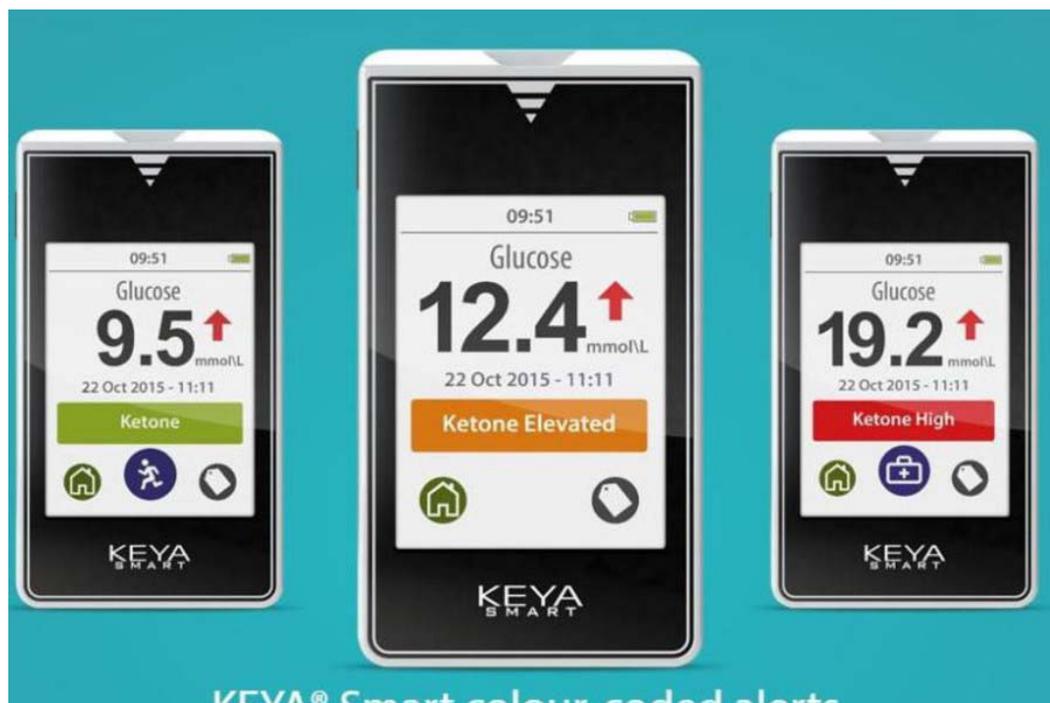


Five of the most innovative life sciences projects happening in Scotland right now

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Picture: submitted

Published: 15:15 Friday 01 December 2017

The life science industry continues to grow, and over 700 companies within this sector call Scotland their home. This innovative industry employs around 37,000 people across the country and is set to be worth around £8bn by 2025 thanks to continued support from the Scottish Government and research projects with the main Scottish medical universities.

Alison McLintock from [Leyton UK](#) shares her insights into five of the most innovative life sciences projects happening in Scotland.

From companies that specialise in gene control to stem cell research and biopharmaceuticals, the developments within this industry will continue to pioneer research into, amongst other things, chronic disease and treatments.

[Inside Biometrics Limited](#), based in the Highlands, are involved in the development and marketing of self-tracking products, with the aim of transforming the monitoring of diabetes for millions of sufferers worldwide. The company were recently awarded the 2017 Life Sciences Award in the Innovation category for their KEYA® Smart blood glucose system. The system allows users to monitor their blood glucose levels, however, unlike others on the market, it is the first to also monitor blood ketones as part of the test, and provide a warning if these levels exceed clinically relevant limits. Ketones are released when there is insufficient insulin in the body, and monitoring the level of these can prevent users becoming seriously ill.

[Dysis](#): based in Edinburgh, are working on development and trialling of a high resolution digital colposcope to deliver advanced cervical scanning. The technology helps to identify relevant biopsy sites using advanced imaging techniques to quickly and painlessly analyse patient. Trials have indicated a significant improvement of detection of precancerous lesions in women using this technique versus conventional methods.

[Clyde Biosciences](#): Collaborative project with Astra Zeneca, exploring kinase inhibitor induced cardiotoxicity, which is essential in kinase research. A kinase is an enzyme which catalyzes the transfer of phosphate groups to specific substrates, in a process known as phosphorylation. The phosphorylation state of a molecule (e.g. protein, lipid or carbohydrate) can affect its activity, therefore kinases are critical in processes including metabolism, cell signalling, cellular transport and protein regulation. Kinases play a critical role in drug discovery, particularly oncology research. The company's CalloPTIQ Assay allowed near simultaneous measurement of three aspects of cellular function, voltage, calcium transient and contractility.

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IDentIFY: Improving Diagnosis by Fast Field-Cycling MRI - is a €6.6M research project funded through the EU Horizon 2020 Programme. The project involves partners from nine sites across Europe, led by The University of Aberdeen.

Fast Field-Cycling MRI (FFC-MRI) is a novel magnetic resonance imaging (MRI) technique pioneered at the University of Aberdeen, which involves breaking one of the fundamental "laws" of MRI - that the applied magnetic field must be held constant during image acquisition. By deliberately switching the magnetic field during the collection of MR images, we are able to gain access to radically new types of endogenous contrast. This new contrast has shown strong potential in the diagnosis and monitoring of a wide range of conditions.

The objective of the IDentIFY project is to bring FFC-MRI to the stage where it can be used as a routine tool for clinical diagnosis. This will require the development of new magnet technology, novel techniques for characterising environmental magnetic fields and a theoretical framework to help describe and understand the new biomarkers that FFC-MRI gives access to.

Dundee University: The Drug Discovery Unit has developed an Antibacterial Drug Discovery Accelerator (ADDA) for early phase drug discovery for new antibacterials. This will create a step-change in the discovery of new antimicrobial drugs and will fill a critical void in the antibacterial discovery-to-therapeutics landscape. The ADDA is translating discovery science innovation, such as a new assays or potential drug targets, into drug-leads which will be partnered or out-licenced to pharmaceutical companies or product development partnerships to take them towards clinical trials and delivery to patients.