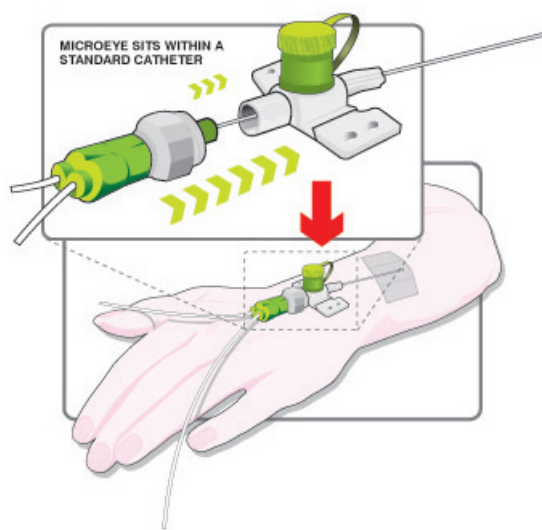




## CONTINUOUS SAMPLING AND MONITORING OF VITAL BLOOD ANALYTES

Provision of key continuous blood chemistry results such as blood glucose has long been requested by clinicians but, until now, only available “off line”. There are significant benefits of having certain blood chemistry results available continuously and online thereby delivering improved patient outcomes, substantial cost savings and improved decision-making information for clinicians.

The MicroEye<sup>®</sup> system delivers simple, reliable and highly cost-effective continuous glucose, lactate and many other blood analyte samples capable of measurement by stand-alone or bed-head display systems.



## TECHNOLOGY

Probe Scientifics' patented MicroEye<sup>®</sup> device delivers a continuous stream of sample fluid (dialysate) without removing blood from the patient's body by dialyzing substances like glucose, lactate, drugs etc. The MicroEye<sup>®</sup> works by slowly pumping perfusate (e.g. saline), through the device inserted into an existing cannula. The technology is extremely safe and versatile since a wide range of substances continuously diffuse from the blood to the perfusate. The perfusate (dialysate) is fed into online sensors to allow continuous, real-time data to be displayed by the measurement system.

## APPLICATIONS AND MARKETS

The MicroEye<sup>®</sup> is unique in its performance and versatility with a wide range of potential applications using sensing systems available now or under development. The underlying technique has also been used effectively as a drug delivery system since the principles of diffusion and dialysis are bi-directional. Other unique features of this technology include the ability to target drug delivery to particular areas of the body (i.e. directly into a tumour) and the ability to profile delivery so, for example, more drug is delivered overnight than during the day.

MicroEye<sup>®</sup> has extensive applications in Drug Development, Sports Medicine and could be used to monitor blood levels during infusion of chemotherapeutic agents, antibiotics and cardiac drugs, etc. The technology can be readily applied to other applications including Children and Neonates where routine blood withdrawal is a major problem.

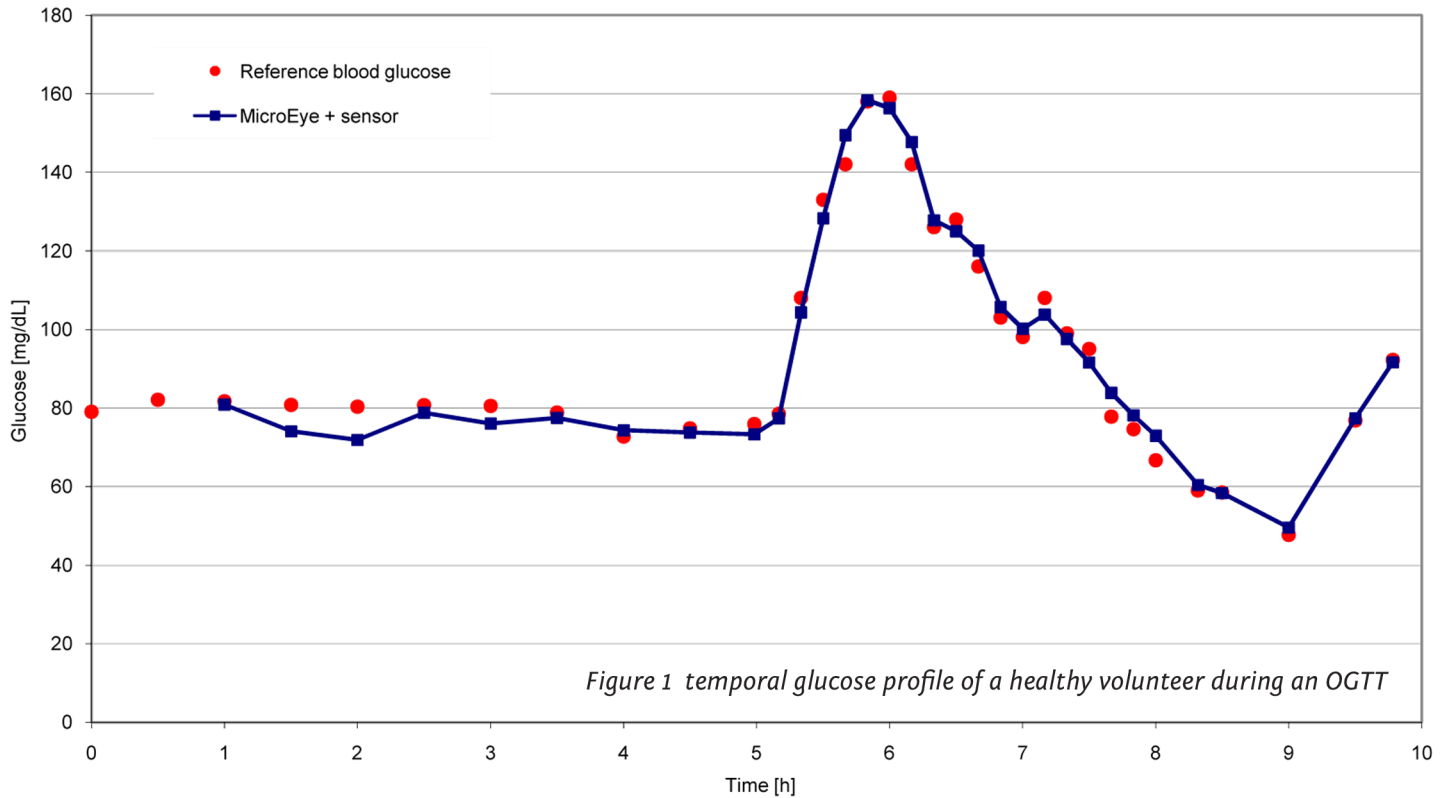
MicroEye<sup>®</sup>, which carries the CE marking, is routinely used with peripheral venous access. However the technology and design allows the device to be manufactured for a number of different uses and applications. A long-line version, for deploying in a central venous line has been made in prototype and could be manufactured for a variety of central line access systems dependant upon length or lumen specification.

## MICROEYE<sup>®</sup> AND CONTINUOUS GLUCOSE MEASUREMENT

It is widely recognised that unstable or brittle diabetics experiencing large swings in blood glucose would benefit from continuous glucose measurement integrated with insulin infusion pumps into a 'closed loop' arrangement which could serve to effectively 'clamp' the blood glucose within a desirable range reducing the risk of further complications and adverse events and significantly improving recovery time and outcomes. This potential market is currently valued at over \$500 million.

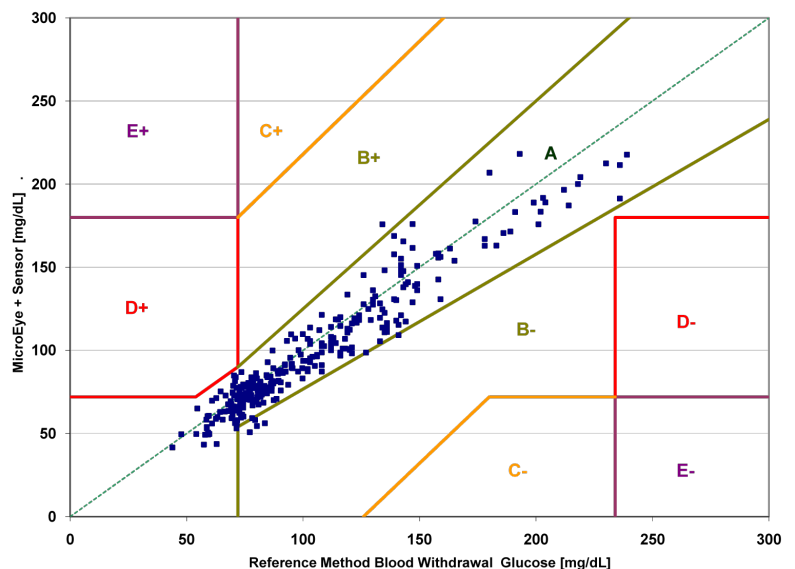
For more information and the opportunity to exploit the technology worldwide, contact Neil Smith: [NEIL.SMITH@PROBESCIENTIFIC.COM](mailto:NEIL.SMITH@PROBESCIENTIFIC.COM) TEL: +44 (0) 2476 323047

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Results shown above are from a recent study comparing the performance of Probe's MicroEye® combined with an online sensor to conventional blood withdrawal and offline analysis.

Blood was withdrawn every 30 minutes from a venous catheter during the baseline period, and every 10 minutes after the Oral Glucose Tolerance Test (OGTT), which started 5 hours into the study. Whole venous blood glucose was measured using an approved reference method. A MicroEye® device sitting within a standard blood cannula, connected to an online glucose sensor unit, generated data points every few seconds without blood loss, manual input or operator manipulation. Calibration of this system was conducted at the start of the procedure using the blood result from the reference method. For comparison, values reported at the time blood was withdrawn are shown above in real-time.



## COLLABORATIONS

Probe Scientific has, until now, developed and sold the sampling device as a stand alone unit through multiple collaborations with various research facilities. More recently, development of integrated sensing and display systems has resulted in clear demonstration of the effectiveness and accuracy of the technology and, for the first time shown that a practical system is available delivering continuous glucose analysis to clinicians.

The success of recent developments means that the time is ideal for the company to identify partners who will commercialise the technology, its applications to date, and exploit the many future applications. The immediate opportunity is in the glucose/critical care arena but it can rapidly expand to build a large lucrative market with many applications. The IP portfolio is robust and considerable know-how and technical expertise is available to assist any potential partner.

The company has initiated discussions with some interested parties but is keen to identify others who can develop and commercialise this unique technology.