

Hy-GENSOR

A hand Hygiene Assessment Device for Healthcare Professionals

Product Offering

Researchers from Institute of Technology Tallaght have developed a novel mobile, self-monitoring (SM) hand-hygiene technology for busy healthcare workers.

Hy-GENSOR is based on electrochemical sensor technology that scrutinises hand-hygiene status, offering quantitative infection-risk assessment in real-time.



Advantages

- **Immediate Hand-Hygiene Evaluation:** Hygensor provides rapid assessment and time to result, compared to microbiological techniques which require hours, or even days to confirm results.
- **Higher Quality Information:** The device displays qualitative, alpha-numeric results to alert the user to finger or hand bacterial cell numbers and can also provide a feedback statement on hygiene status. This gives Hy-GENSOR an advantage over swab-type colourimetric tests which only produce qualitative 'state-of-cleanliness' estimates. The technology can potentially extend to higher quality information, such as species identification.
- **Portable Skin-Sampler:** The SM strip reader acts as a portable electronic controller for signal acquisition and data storage.
- **Minimal Operator Intervention:** The user simply has to insert an SM strip into the device and swab fingers or hands.
- **Low Cost, High Volume Production:** The design features and methodology associated with this technology facilitate low cost and high volume manufacturing.

Industrial Applications

Hy-GENSOR is intended for use throughout the healthcare industry, covering social, hygiene and surgical hand-washing. The device would have specific applications in efficiency analysis (hand-wash protocols), spot-test evaluations, liability and risk assessments.

Hospital wards, GP surgeries, Clinics and Dentists are all potential users of this technology.

Commercial Opportunity

We are currently seeking commercial partners operating within the healthcare or diagnostics industries to take this technology to market. The UK alone has over 200 large NHS hospitals and thousands of healthcare personnel constituting a minimum market size of over €20m in disposables (daily testing per annum). Hy-GENSOR, therefore, presents a significant opportunity for hospital-hygiene providers with established sales networks for hygiene-related products. We offer excellent commercial terms to licensees on technologies developed through ITTD research.

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Stage of Development

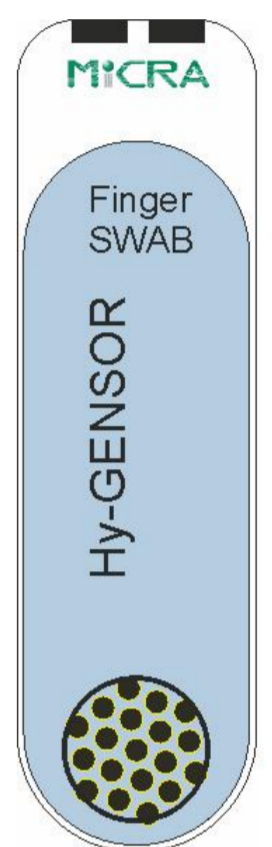
Pre-commercial prototypes have been developed and successfully trialled in a laboratory environment. The technology is patent-pending.

Technology Description

The Hy-GENSOR principle is based on electrochemical sensor technology.

The sensor is composed of a micro-porous membrane possessing a hydrophilic gel sub-layer with consumable redox reagents. A finger, or palm touch to the membrane transfers microbial cells (bacteria) onto the gel surface. Cellular enzymatic reactions ensue which are quantified by a coulometric electrode system beneath the hydro-gel.

This electronic signal is calibrated in cell-count surface density and data is displayed, stored or Wi-Fi up-loaded via a pocket meter.



Right: Illustration of Hy-GENSOR Hand Hygiene Assessment Device

Project Team and Collaborators

Dr. Brian Seddon, Prof. Eithne Dempsey with generation of test data enabled via undergraduate project students ZiWei Sun and Xu Huanyan.

There was also collaboration from associated projects teams within the ITT Dublin Technology Gateway (MiCRA).


Intellectual Property

The novel and patentable features of the Hy-GENSOR are contained in the design and methodology associated with the main SM strip components, including the skin-sampling touch membrane and the electrode-sensor system. The technology is patent-pending.

Next Steps

If you would like to learn more about this technology or discuss commercial opportunities, please contact:

Paul Maguire, Licensing Executive, DIT Hothouse
on 01 402 7002 or email paul.maguire@dit.ie



Hothouse is the award winning Innovation and Technology Transfer Centre based in Dublin Institute of Technology. Hothouse leads the consortium responsible for commercialising the research from DIT, IT Tallaght, IT Blanchardstown, IADT and National College of Ireland.

Hothouse draws in entrepreneurial and academic talent, ignites creativity and provides a dynamic environment to fast-track businesses and technologies to commercial success.

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