Public Health England

Transdermal assay system

Device for improved assessment of transdermal delivery of drugs, nanoparticles etc.

Licensing opportunity

PHE is seeking licensees to manufacture and distribute the device, as well as companies interested in using the technology for development of pharmaceutical products.

PHE is currently working to secure accreditation for the method in Europe and it is anticipated that the technology will be of interest to pharmaceutical companies, pre-clinical testing laboratories, and drug-delivery and formulation companies.

Licensee characteristics

PHE is seeking partnerships with scientific equipment suppliers for the manufacture and distribution of the devices.

PHE and its history of success

PHE was established on 1 April 2013, as an executive agency of the UK Department of Health, to bring together public health specialists from more than 70 organisations into a single public health service. With ~5,500 employees and £1 billion budget, PHE aims to protect and improve health and wellbeing; reduce health inequalities; provide a nationwide, integrated public health service; support people to make healthier choices; and provide expertise, information and intelligence.

PHE is committed to ensuring that its capabilities and discoveries are effectively developed and exploited in partnership with industry in order to benefit public health in the UK and globally. It has considerable experience of forming partnerships with industry (both major companies and SMEs) and of commercialising its IP through licensing, forming joint ventures and creating spin out companies.

PHE contributes to health through commissioned research programmes, and through the maintenance of a capability to respond to future needs. It provides national and international reference laboratories for many microbial and viral diseases.

Technology area

The assay method is novel as it allows for improved accuracy for *in vitro* modelling of dermal absorption by way of apparatus which can flex the membrane used in a manner analogous to that of natural skin.

In current systems, the membranes are static, which does not provide a true surrogate system for delivery of molecules to living skin.

Diffusion cells

The Organisation for Economic Development and Cooperation has defined criteria for diffusion cells for testing transdermal delivery of substances to provide consistency between laboratories. These cells (sometimes called Franz cells) consist of two chambers, between which the test membrane or skin sample is held such that it provides a seal between the two chambers. The lower chamber typically contains a fluid into which chemicals placed on the membrane as liquid, gel or patch, will diffuse.

PHE's novel diffusion cell

The new PHE cell is compatible with the OECD definitions with the added capability of flexing and stretching the membrane. Thus, results may be directly compared between the flexed system and static systems. The device was invented by James Wakefield at PHE's Centre for Radiation, Chemical and Environmental Hazards.

Market Opportunity

Diffusion cells are widely used in the pharmaceutical and cosmetic industries and in laboratories concerned with testing chemical hazards. The new flexing cell is a significant advance and PHE's results already show differences in diffusion rates across flexed membranes compared to static membranes, so it is likely that there will be strong interest in the devices.

Intellectual property

International patent application No.: PCT/GB2010/051992 (WO2011/067587)

Awaiting grant in EP, US, AU, CA and JP

Next steps

If you would like to discuss this opportunity further please contact:

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