Special Feature: Surgery (P.16)

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A Stomach Health Test Developed by Biohit

An increasing number of Finns can now check the health status of their stomach. This is important, since roughly one out of three Finns suffer from dyspepsia, whose symptoms include intermittent or continuous discomfort in the upper abdomen, nausea, swelling, belching, heartburn or pain. These problems are often medicated with over the counter drugs, but this can lead to a situation where an asymptomatic but serious disease, which may be a cancer risk factor, is not diagnosed", says *Jussi Heiniö*, CEO of **Biohit**.

"**Terveystalo,** the leading private healthcare provider in Finland, seeks to provide a wide range of services for its customers, and GastroPanel is a handy primary examination for our general practitioners when they encounter a patient who suffers from stomach problems or when a symptomless patient comes in for a health check-up. A simple blood test gives a lot of information about the patient's condition, enabling the physician to select the treatment or prescribe further studies", says *Päivi Metsäniemi*, Medical Development Director of Terveystalo.

"The GastroPanel examination is performed by drawing a blood sample and determining the concentration of biomarkers that indicate the condition of the gastric mucosa, and the presence of any Helicobacter pylori antibodies. The resulting report offers a lot of information about the condition and functioning of the gastric mucosa.

GastroPanel Packages

The exam is a cost-effective way of detecting diseases which, if detected too late, can lead to cancer. The GastroPanel examination is recommended for use by health centers and occupational health physicians. Employers should propose that GastroPanel be included in the list of basic exams covered by the occupational health care agreement. There is no reason to wait until a potentially serious disease gets worse, since this quick examination is an easy and risk-free way of determining the condition of the stomach. A diagnosis and subsequent treatment received for dyspepsia reduces risky self-medication and decreases health care costs", Biohit's *Jussi Heiniö* notes. ■

The ABC of Sanitization by ACEM

It is well-known that the most outstanding infection health hazard environment in hospitals is represented by the surgical operating rooms. Being engaged in the research & development processes to find new innovative cleaning solutions, **ACEM Medical Company** (Division of **ACEM S.p.A.**, Italian company specialized in the design, production and distribution of medical surgical lamps for hospitals and operating rooms use) has studied a sanitization system able to reduce the potential infection risk situations due to the bacterial pathogen microorganisms proliferation in the common environments where the disease-spreading is easier, i.e. the surgical operating room.

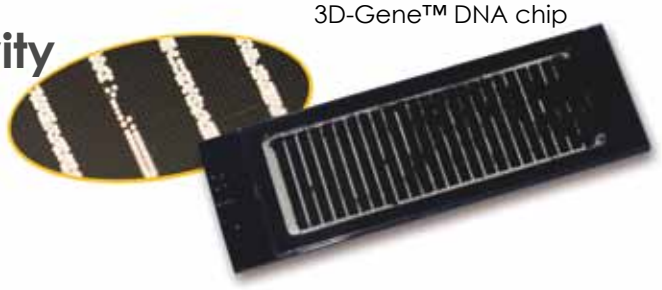
ACEM products represent a tangible innovation because they are technically well-advanced, based on the LED technology and treated with a specific antibacterial coating which radically contrasts the bacteria viable cells. Important scientific researches have been performed during the previous years to develop new innovative eco-compatible technologies trying to increase the environmental conditions. The recently produced materials are able to generate the reactive oxygen species, apply the photocatalytic process carrying out a complete oxidation and death of the bacterial microorganisms.

Titanium dioxide (TiO2) is a semiconductor oxide showing a marked photocatalytic activity which can be activated with the solar and artificial irradiation absorption. In fact, it usually absorbs the photonic incidence radiation of a determinate wavelength (UVA region) and then participates in the photocatalytic surface reactions.


ACEM's surgical LED lamps

Based on these studies, the R&D department of ACEM S.p.A. in collaboration with the Department of Applied Chemistry and Materials Science and the Microbiology lab of the Agro-environmental Sciences and Technologies Department of the **University of Bologna**, has produced and patented a surface coating called ABC® **(AntiBacterialCoating)** which has been applied on ACEM surgical LED lamps as a titanium dioxide aqueous acrylic dispersion. ■

Toray Introduce a New Dimension in Microarray Sensitivity


3D-Gene™ DNA chip

Toray has announced the European release of its groundbreaking 3D-Gene™ products, a range of three dimensional DNA chips for use in microarray analysis. The new microarrays utilize several unique features to enhance assay sensitivity, providing the perfect platform for working with low abundance targets such as microRNAs, or troublesome samples such as formalin-fixed paraffin embedded (FFPE) tissue specimens. In a new approach pioneered by Toray, each chip is composed of a black resin that reduces background fluorescence, while probes are attached to three dimensional microcolumns on the surface. In combination, these factors precisely define the spot morphology. The columns are also surrounded by microbeads that are encapsulated on the chip and can be agitated to ensure homogenous sample distribution during the hybridization process. These properties maximize signal-to-noise ratio and increase accuracy, reproducibility and sensitivity. Importantly, the chips are compatible with current array scanning methods so that no specialized infrastructure is required to utilize the system.

Toray has extensive, global experience in applying its chemistry expertise to the development of innovative solutions across a broad range of applications. The 3D-Gene™ DNA chip technology designed by Toray sets a new benchmark in terms of microarray sensitivity and accuracy. The chips are capable of a high level of precision at concentrations as low as 0.1 attomol, providing an impressive improvement on currently available technologies. This will be especially interesting to those who would like to detect low abundance mRNA and microRNA targets in human, mice and rat samples. The system is also ideal for working with poor quality specimens or those containing a small amount of starting material (e.g., FFPE, serum or plasma), as 3D-Gene™ chips can precisely distinguish background noise from the low numbers of target molecules typically present in these samples. ■