

Molecular Biology | Chemistry | Technology Offer

Fluorescence microscopy: Near-Infrared Dyes for *in vivo* Labelling

Current Status of Technology and Market

Fluorescent dyes are currently used widely in laboratory research and in the field of molecular diagnostics. Fluorescence based technologies are by now almost indispensable in studies of cellular structures and functions as well as the detection, interaction and quantitative analysis of biomolecules, often in the form of multiple fluorescence mixtures.

The market for cellular imaging had a turnover of US\$ 1.65 billion in 2004, according to a Trimark study, and by the year 2009 the projected turnover figure is US\$ 2.77 billion. This represents an annual growth rate of over 11%, primarily in the field of confocal microscopy.

The fluorophores usually used in the staining of membranes have the disadvantage that their spectra overlap with those of the most common fluorescent markers. For this reason and because of the chemical properties of these fluorophores it is not possible to use them universally for fixed cells as well as life imaging studies with animal and plant cells.

The innovation

Researchers in Heidelberg, Germany, succeeded in developing a new anthraquinone dye group which for the first time combines the optimal characteristics of a variety of methods specifically for the dyeing of membranes of live and fixed eukaryotic cells and therefore matches the diversity of systems being investigated.

The fluorescent dyes which are the subject of this invention exhibit an emission spectrum in the near-infrared region. They therefore exhibit almost no overlap with commonly used fluorochromes. The dyes are particularly suitable for the observation of processes within living cells (such as exo- and endocytosis, cell division). The invention provides for a much greater opportunity for multiple stainings, respectively for co-localisation studies. By coupling these dyes to biomolecules they can also be applied in the field of nanotechnology.

Patent Situation

A European and a US Patent Application is currently pending.

Technology Transfer

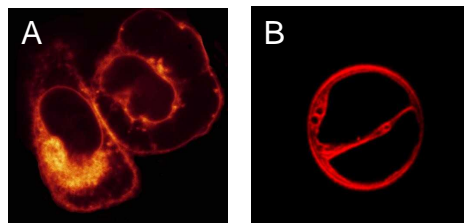
The Technologie-Lizenz-Büro GmbH is charged with the commercialization and now offers companies the opportunity to obtain a license to exploit this new and promising technology.

Your benefit

To provide an add-on dye to your costumers which can be universally used in all biological contexts. The fluorescence microscopy is a rapidly growing field in life science permanently looking for fluorescent dyes with additional features.

Kaya dye Features:

- Simple manufacture with high yield
- High chemical and photo stability
- Simple application
- Water soluble
- Non-toxic in cell cultures
- Emission in the near-infrared
- Simple coupling to biomolecules
- Minimal background emission



Live Imaging of human Hela cells (A) and plant tobacco cells (B) both with labelled membrane, confocal laser scanning microscopy, Helium Neon laser, 633 nm emission

A True All-Rounder

- Membrane selectivity (inner and outer side)
- Extremely broad field of application (living and fixed animal and plant cells, tissue sections)
- Transmission to daughter cells
- Live observations of cell processes
- Increased flexibility to use simultaneously multiple dyes

For further information on this technology please contact:

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