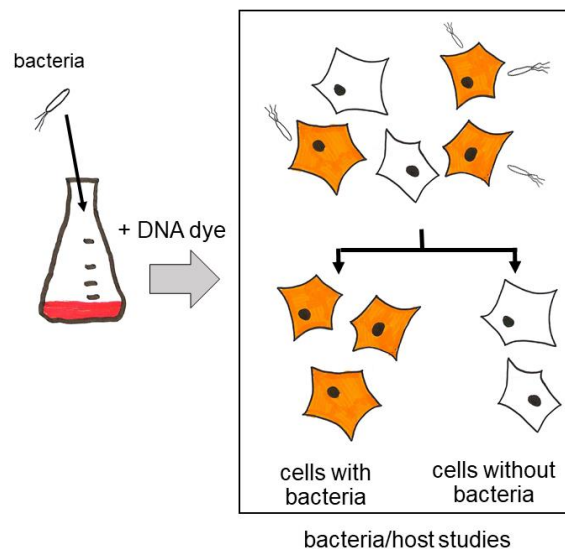


Cyanine dyes for in-vivo staining of microorganisms

host-pathogen interactions, DNA-staining, monitoring of therapeutic success

DESCRIPTION OF TECHNOLOGY

Current approaches of host-pathogen interaction solely rely on genetic manipulation by use of GFP-expression. This is very strenuous and several important organisms have remained difficult to modify for GFP expression. This is particularly true for the growing number of multi-drug resistant bacteria, posing an emerging threat to patients worldwide.



Picture: TransMIT GmbH

The innovation presented herein provides cyanine dyes which can be used for in vivo-staining of microorganisms without reduction of the viability of the stained microbes. In doing so the dyes allow quite convenient investigation of the natural interaction of pathogens with their host cells.

AT A GLANCE ...

Application Fields

- Medical studies of pathogen-host-interaction
- Diagnostic kits

Business

- Medical diagnostics
- Monitoring of therapeutic success

USP

- In vivo staining without loss of viability
- No need for genetic manipulation

Development Status

- Already tested with:
 - *Escherichia Coli*
 - *Klebsiella pneumoniae*

Patent Status

Priority application filed on 24.05.2018 at the European Patent Office.

APPLICATION FIELDS

The cyanine dyes can be applied for performing infection studies by use of stained living pathogens instead of genetically manipulated organisms, thus providing a much more realistic insight into host-pathogen interactions.

By using the dyes for staining pathogens within medical samples and observing their interaction with host cells the success of a certain therapy can be observed and – if need be – the therapy can be more precisely adjusted to the current situation

ADVANTAGES OVER THE PRIOR ART

By use of the new cyanine dyes it is no longer necessary to genetically manipulate the pathogens which are to be investigated (microscopically observed).

The viability of the pathogens to be investigated is not negatively influenced, so that pathogen-host-interactions can be studied under real life conditions.

STATE OF THE PRODUCT DEVELOPMENT

The method has already been successfully applied on laboratory scale with *Escherichia coli* and antibiotic-resistant and -sensitive *Klebsiella pneumoniae* strains.

MARKET POTENTIAL

In 2015 the European market for molecular diagnostics reached 1.786 billion US-\$. Frost & Sullivan prognoses a rise of market volume up to about 3.086 billion US-\$ until 2020. (equaling a growth of 11.5 % per year).

COOPERATION OPPORTUNITIES

On behalf of its shareholder Philipps-Universität Marburg TransMIT GmbH is looking for licensees or cooperation partners for further development in Europe.

A TECHNOLOGY OF



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