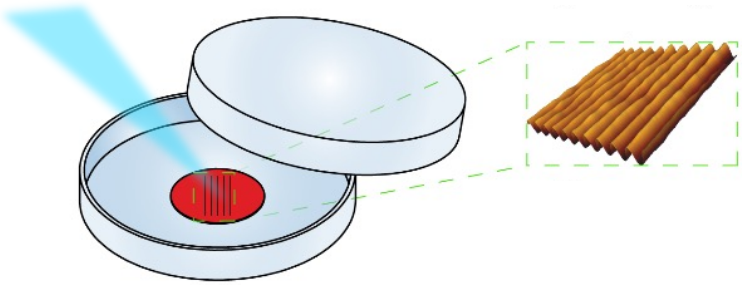
Tampere University
Tampere University of Applied Sciences

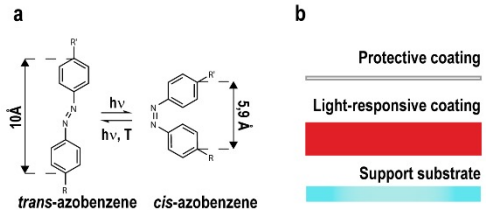
Batch 2022

L-Cell - Light-reconfigurable substrate for cell cultures



The growing need to reduce animal testing in drug screening, toxicology, and research has increased the demand for innovative cell culture solutions that recapitulate the complexity of cell dynamics in a controllable, cost-effective way, without sacrificing their clinical relevance.

L-Cell is a method for robust, reconfigurable control of surface topography, based on creating reversible light-induced surface structures onto light-responsive bilayers. These light-reconfigurable substrates allow free-form topographical patterns to be created and subsequently erased on a biocompatible cell culture substrate, even when the cells are already growing on the substrate. L-Cell aims at mimicking more closely the dynamics that regulate many physiological and pathological processes, such as tissue morphogenesis, healing, and tumor growth, enabling unique biological investigations on cell dynamics to be conducted.



(a) Trans-cis photoisomerization reaction of azobenzene. (b) The L-Cell multilayer structure.

COMPETITIVE ADVANTAGE

- L-Cell allows topography reconfiguration and customization
- Tunable resolution down to 300 nm
- High stability and long shelf-life
- No need for additional expensive equipment nor new expertise

IPR STATUS

- Provisional patent (2021)

SEARCHING FOR

- Partnerships with companies producing/distributing petri dishes
- Partnerships with equipment manufacturers
- Collaboration with potential end users (e.g. researchers and academic institutes, pharmaceutical and biotech companies)

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