

LightWorks Optics Awarded a Research Grant to Develop a Technology That Integrates Pulsed Laser Irradiation and Polymer Microdevices for Single Cell Isolation and Expansion.

Friday, June 12, 12:00 pm PT

LightWorks Optics Inc., an optics company that designs, develops, and manufactures advanced optics systems for biomedical companies, announced today that it has been awarded a \$349,861 Phase I Small Business Innovation Research Grant (SBIR) from the Department of Health and Human Services of the National Institutes of Health (NIH) to develop a novel technology that integrates pulsed laser microbeam irradiation and polymer microdevices for single cell selection, isolation, and expansion. This technology will be designed for use by biomedical researchers as well as the biotechnology and pharmaceutical industries. The program is funded under the SBIR “Lab to Marketplace” program.

An important application of this technology will provide a cost-effective approach to the formation of homogeneous (monoclonal) cell populations with specific characteristics and thus enables a variety of activities connected with understanding cellular behavior and disease progression as well as evaluating the effectiveness of potential therapeutic agents.

Background on the Technical Approach

The objective is to develop a novel technology that integrates pulsed laser microbeam irradiation and polymer microdevices for single cell selection, isolation, and expansion. Cell selection and isolation are achieved by culturing adherent cells on the top of discrete polymer micropallet fabricated on top of a glass surface that facilitates biological imaging. Once an adherent cell of interest is identified (e.g., via morphological analysis or fluorescence microscopy), a pulsed laser microbeam is delivered proximal to the interface between the polymer and the underlying glass coverslip to release the cell and micropallet. Once collected the cell can, for example, be subject to genomic/proteomic analysis or cultured to form a monoclonal cell population.

Advantages of this Technology for Cell Isolation Research

The plan is to design and build an apparatus that can be easily integrated with standard biological microscopy platforms and operated by general users in biomedical research and pharmaceutical/biotechnology industries.

About LightWorks Optics

LightWorks Optics, Inc. is a fully integrated provider of custom, precision optical system solutions for biomedical, defense & aerospace, industrial and commercial customers. Our sophisticated design, development, and manufacturing services span markets and applications from biomedical to advanced defense and commercial optics. The photonic applications may be diverse, but all LightWorks Optics products share a common focus on rapid development, excellent value, and high performance.

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