TECHNOLOGY

Specific Protein Capture Membranes

OVERVIEW

Current approaches to identifying from tissue samples and physiological fluids include immunohistochemistry and blotting, respectively. While there are strengths and weaknesses to both, a common limitation is that they both require large amounts of sample, especially if they are to be used to screen numerous molecular targets (biomarkers). This is particularly problematic in the early phases of clinical trials when the number of patients enrolled is small and samples are scarce. Therefore there is a strong need for a tool that can generate protein expression profiles from samples available in small quantities. The most promising emerging approach to overcome this difficulty is to use a stack of specific bioaffinity or 'smart' membranes capable of detecting multiple molecular targets in a single sample (multiplexing).

Researchers at the University of Maryland have created a generic membrane platform on which a variety of attachment schemes could be employed to immobilize biomolecules. The base membranes were modified to alter their surface properties so that they could be uniformly coated. Immobilization of single stranded DNA to the surface and the ability of this to hybridize to a complimentary nucleic acid were demonstrated. A stack of membranes each with a unique single stranded DNA on the surface could selectively hybridize with its complementary strand in a concentration dependent manner. The researchers are in the process of extending the platform to selective protein binding to antibodies that are tethered to the membranes.

For additional information please contact the Office of Technology Commercialization, University of Maryland. Phone: 301-405-3947. E-mail: otc@umd.edu

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Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Contact OTC for licensing information

CATEGORIES

- Platforms

- Imaging devices

EXTERNAL RESOURCES

- US Patent 7,771,955

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