Microarray for High Throughput Detection of Enzymatic Activity

Tech ID: 19804 / UC Case 2007-252-0

TECHNOLOGY DESCRIPTION

The invention gives a novel microarray to detect proteolytic activity in clinical samples (plasma, etc.) and cleavage of specific protein sequences that are of physiological important for normal cell function.

The approach advances the state-of-the-art, which consists of protease assays based on cleavage of specific short amino-acid sequences designed to detect specific protease activity. The existing protease detection kits are based on 96 well plates with relatively large sample size (0.1 to 0.3 ml) each and they are not designed to detect cleavage of important biological macromolecules.

ADVANTAGES

- Detection of a variety of protease activities simultaneously in a multiplex arrangement.
- Detection of the cleavage of amino acid sequences that are derived from important elements of membrane receptors for physiological function (e.g. the extracellular domain of the insulin receptor, membrane adhesion receptor, growth factor receptors, and many others membrane receptors), plasma proteins, or functional receptors in specific organs (nicotinic receptor in the brain, amyloid protein in Alzheimers disease, glutamate receptors, adrenergic receptors, cholinergic receptors, aminoacid transporters, selectins, glycocalyx proteins, and many others).

APPLICATIONS

- Diagnostic devices to detect unchecked enzymatic activity in clinical samples.
- In-home use to detect of a broad variety of auto-digestive processes in human diseases.

STATE OF DEVELOPMENT

Proof of concept has been determined.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,733,241	08/15/2017	2007-252
United States Of America	Issued Patent	9,222,119	12/29/2015	2007-252
United States Of America	Issued Patent	8,940,866	01/27/2015	2007-252
United States Of America	Issued Patent	8,507,218	08/13/2013	2007-252

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- DNA Double-Write/Double Binding Identity For Micro/Nano Lithography and Self-Assembly Nanofabrication
- A New Method To Accelerate Tissue and Wound Healing Rates and Reduce Swelling and Scar Formation
- Self-Assembling 2D and 3D Nanostructures for Nano-Photonic and Nano-Electronic IC's and Devices
- Novel Method for Accelerating Alimentary Tract Recovery in Post Abdominal Surgeries

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Diagnostics

RELATED CASES

2007-252-0

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