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Medical Glycoproteomics: Quantifying Stable Isotope-Labeled, Affinity-Selected Glycopeptides for Diagnostics

A novel method using stable isotope labeling and affinity selection of glycopeptides greatly increases the sensitivity and specificity of serum tests for early disease diagnosis and therapeutic target discovery.

Combinations of glycopeptides and glycoproteins are used in the diagnosis, treatment, and monitoring of diseases and their causes in clinical, diagnostic, and discovery medicine. With some exceptions, current tests generally lack the necessary sensitivity and specificity for early and accurate diagnosis.

Researchers at Purdue University have proposed an application of glycoprotein technology that greatly increases the specificity and sensitivity of serum tests for many types of cancer and other diseases. This novel method is used for stable isotope labeling and affinity selection of glycopeptides to identify serum glycoprotein changes. In addition to diagnosing and monitoring diseases, this method may also uncover novel targets for the development of therapeutics.

Advantages:

-Sensitive enough to detect cancers without biomarkers

-Less complex and more sensitive than other methods

Potential Applications:

-Medical/Healthcare

-Pharmaceuticals

-Drug development

-Drug targeting and screening

TRL: 2

Technology ID
64407

Category
Biotechnology & Life Sciences/Biomarker Discovery & Diagnostics
Pharmaceuticals/Drug Discovery & Development

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Intellectual Property:

Provisional-Patent, 2006-02-22, United States | Provisional-Patent, 2007-07-02, United States | PCT-Patent, 2008-06-30, WO | Utility Patent, 2008-06-30, United States

Keywords: glycoprotein technology, glycopeptides, stable isotope labeling, affinity selection, serum tests, cancer diagnosis, disease monitoring, therapeutics development, novel targets, biomarkers, Assays, Biotechnology, Drug Conjugates, Drug Development, Drug Targets and Screening Assays, Mass Spectrometry