

ISOTOPE TARGETED GLYCOPROTEOMICS FOR NONTEMPLATED GLYCAN AND PEPTIDE ISOFORM DISCOVERY

Tech ID: 24557 / UC Case 2015-070-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,114,026	10/30/2018	2015-070

BRIEF DESCRIPTION

Glycosylation is a heterogeneous and substoichiometric post-translational modification (PTM) on proteins. Glycan heterogeneity directly translates to difficulties in the detection and identification of glycopeptides in glycoproteomics.

Researchers at the University of California, Berkeley have recently developed a targeted, mass independent chemical glycoproteomics platform for characterization of intact, metabolically labeled glycopeptides. This novel technology utilizes the multifunctional cleavable probe for enrichment of labeled glycoproteins, and imparts an isotopically recoded mass envelope to the released glycopeptides. The recoded mass envelope is used as a selection factor for targeted glycoproteomics, and isotopically recoded glycopeptides are selected for tandem MS analysis at a four-fold higher rate. We identified over 550 glycopeptide isoforms from 240 proteins across Jurkat, PC-3, and MCF-7 cancer cell lines. Targeted analysis of tagged species facilitated the high confidence assignment of intact glycopeptides that were not present in the predicted protein database.

SUGGESTED USES

- » Research tools for characterization of glycopeptides

ADVANTAGES

- » improved glycopeptide targeting
- » effectively targets low abundance species,
- » mitigates the need for extensive fractionation, mass spectrometer analysis, and computation time.

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- [Synthetic compound for quadricyclane labeling of multiple biomolecules without disrupting living systems](#)
- [Alkyne-Activated Fluorogenic Azide Probes](#)

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