PTMScan® Direct: Quantitative Profiling of Critical Nodes From Cellular Signaling Pathways

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Introduction
Proteomic analysis of post-translational modifications (PTMs) often relies on time-dependent analysis, providing high-level information on high-abundance modified peptides. However, the dynamic nature of PTMs can result in a wide variation in protein expression over time. This can complicate the primary goal of programs to develop drugs, develop incipient phase drug discovery, and identify targets for disease intervention, which is to identify biomarkers of disease and assess their potential as therapeutic targets.

PTMScan® Direct: Multi-Pathway
HIGHLIGHTED PURPLE NODES indicate targeted protein modifications in key within each sample signaling pathway that can be investigated with PTMScan® Direct: Multi-Pathway Reagent.

Methods
PTMScan® Direct Method Flow Diagram
Adapted from the original ProlificScan® method developed at CDT (Rush, J. et al. 2005) to facilitate development of an LC-MS/MS-based analysis of the patient’s tissue using ITK software.

Immunofluorescence Environment
Cell line, tissue, neoplastic, or other biological starting material are processed and destaining solutions are used to destain the slides for immunofluorescence detection. Staining may be performed using either a 1:1 or 1:2 mixture of the antibody solution and the destaining solution. Staining may be performed using either a 1:1 or 1:2 mixture of the antibody solution and the destaining solution. Staining may be performed using either a 1:1 or 1:2 mixture of the antibody solution and the destaining solution.

PTMScan® Direct Reagents
Multi-Pathway: directed by key of multiple signaling pathways, Cell Signaling Technology (CST) has developed an immunaffinity-based LC-MS/MS assay to evaluate the dynamic response of the mass spectrometer. This can complicate the primary goal of programs to develop drugs, develop incipient phase drug discovery, and identify targets for disease intervention, which is to identify biomarkers of disease and assess their potential as therapeutic targets.

PTMScan® Direct: Ser/Thr Kinases
PTMScan® Direct results for MKN-45 cells treated with DMSO or SU11274

PTMScan® Direct: RTK Inhibitor Study
The PI3K p85α, Akt1, Akt2, and Akt3 proteins, and the PI3K p85α (Tyr199) and Akt1 (Ser474) protein modifications, were evaluated in two cell lines treated with two different inhibitors to assess the impact of each on the PI3K/AKT pathway.

Summary
PTMScan® Direct is a novel method that allows multiplexed monitoring of critical signaling nodes from a single pathway or multiple pathways combined. PTMScan® Direct is widely applicable to drug discovery and development, as well as in any application where monitoring of nodes signaling pathways is desired.

References

Contact Information
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PTMScan® Direct: Drug Discovery and Development
The potential of PTMScan® Direct in drug discovery and development: Sample in the drug discovery and development process in which PTMScan® Direct analysis can be used to indicate with cancer.

Screening New Drugs
Pharmacokinetic Studies
Monitor Drug Therapy

PTMScan® Direct: Ser/Thr Kinases
PTMScan® Direct: RTK Inhibitor Study
PTMScan® Direct: Multi-Pathway Reagent
PTMScan® Direct: Drug Discovery and Development

PTMScan® Direct: RTK Inhibitor Study
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