

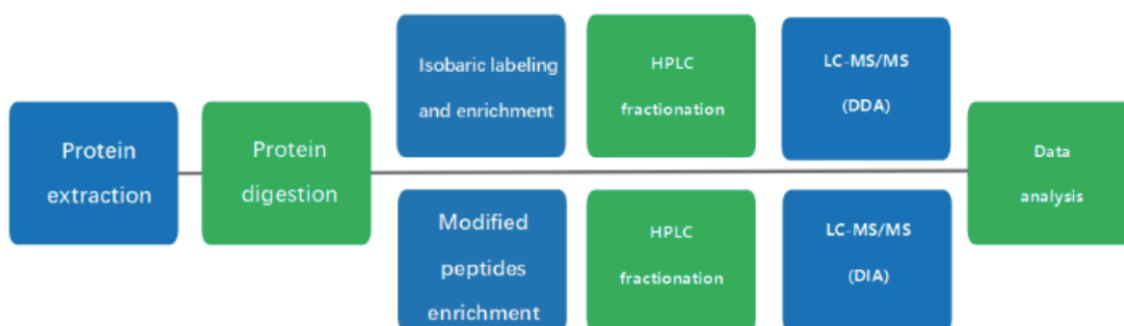
Phosphoproteomics Overview



Service Description

Protein is the main executor of life activities, and protein phosphorylation is one of the most important covalent modifications in living organisms. More than one-third of proteins in eukaryotic organisms can undergo phosphorylation modification. Phosphorylated proteins are widely involved in cell proliferation, development, differentiation, apoptosis, cytoskeleton regulation, neural activity, muscle contraction, metabolism, tumorigenesis, and playing a biological on/off switch role in various biological cell functions. In-depth research on post-translational modifications of proteins is of great significance for revealing the mechanism of life activities, screening disease biomarkers, identifying drug targets, and so on.

Workflow



Advantages

TMT (Tandem Mass Tags for Quantitation) Analysis:

Simultaneously compare multiple samples.

DIA Phosphoproteomics Quantitative Analysis:

High-depth: Identifies over 15000 phosphorylated peptide segments in 1 hour.

High-accuracy: Quantitative correlation as high as 0.95.

Quantitative Proteomics and Phosphoproteomics Correlation Analysis:

Phosphoproteomics is strongly linked with conventional protein quantification, exploring the panoramic view of protein expression and the molecular regulatory mechanism.

PHOSPHOPROTEOMICS OVERVIEW

Research Applications

Disease Research

- Disease Biomarker Research
- Drug Target Screening
- Drug Evaluation

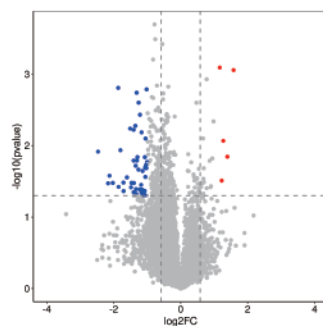
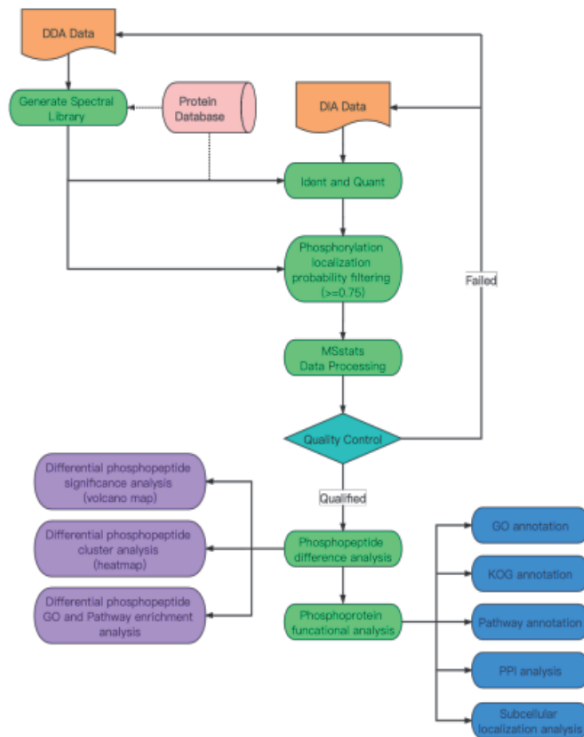
Animal and Plant Research

- Animal Pathogenic Mechanism Study
- Plant Resistance Mechanism Study

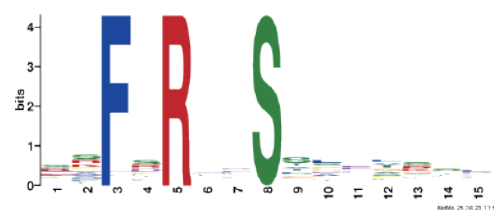
Microbial Research

- Pathogenic Mechanisms of Microorganisms Research
- Optimization of Microbial Fermentation Conditions

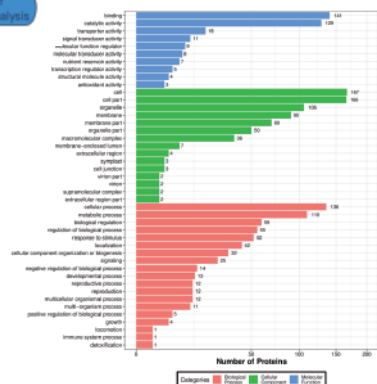
Results



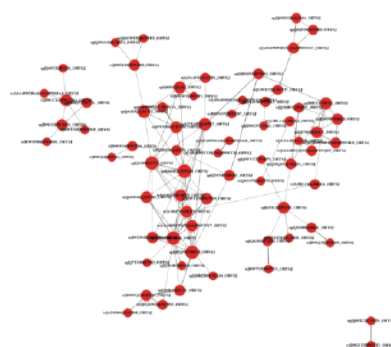
Volcano plot



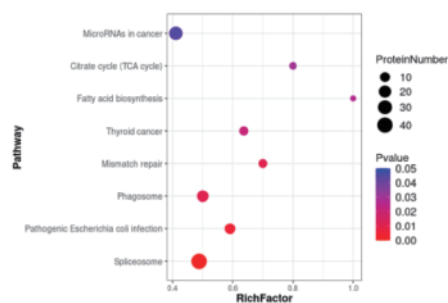
Graphical representation of a phosphorylation-specific motif



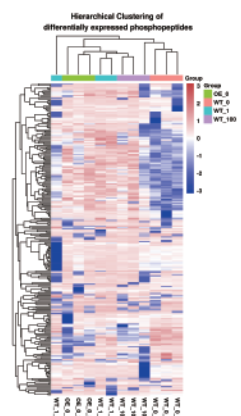
GO function annotation



PPI network of DEPs



Significantly enriched pathway



Differential phosphopeptides clustering

General Sample Requirements

	Sample Type	Sample amount category	Phospho-TMT	Phospho-DIA	Note
Animal	Common animal tissues: animal internal organs (heart, liver, spleen, lung, kidney), skin, muscle, brain, etc	Recommended	≥20 mg	≥20 mg	
		Minimum	≥10 mg	≥10 mg	
	Mollusks (Toxoplasma, Schistosomiasis, Drosophila, Acarid, Plutella xylostella, Laodelphax, Cestode, Cicada, Hematodinium, etc.)	Recommended	≥20 mg	≥20 mg	
		Minimum	≥10 mg	≥10 mg	
Cell	Suspended cells, adherent cells	Recommended	≥2×10 ⁷	≥2×10 ⁷	
		Minimum	≥2×10 ⁷	≥2×10 ⁷	
Plant	Twigs of plants (leaf buds, tender leaves), algae	Recommended	≥2 g	≥2 g	
		Minimum	≥1 g	≥1 g	
	Old leaves, roots, stems, bark of plants	Recommended	≥4 g	≥4 g	
		Minimum	≥2 g	≥2 g	
	Plant buds, pollen	Recommended	≥200 mg	≥200 mg	
		Minimum	≥100 mg	≥100 mg	
	Plant seeds (rice/wheat seeds, etc.), fruits (apples, peaches, pears)	Recommended	≥500 mg	≥2 g	
		Minimum	≥200 mg	≥1 g	
Microorganism	Prokaryotic bacteria (E. coli, Staphylococcus aureus, etc.), fungi (yeast, etc.)	Recommended	Thallus ≥200mg or cells ≥2×10 ⁷	Thallus ≥200 mg or cells ≥2×10 ⁷	Phosphorylation is not recommended for prokaryotic samples
Protein solution	Complex protein solution, protein powder	Recommended	≥1 mg, ≥0.5 µg/µL	≥2 mg, ≥0.5 µg/µL	
		Minimum	≥0.5 mg, ≥0.5 µg/µL	≥1 mg, ≥0.5 µg/µL	

Turn Around Time

Typical 3-5 weeks from sample QC acceptance to data report delivery



Request for Information or Quotation

Contact a BGI Genomics representative to discuss how we can meet your specific needs or for expert advice on experiment design, from sample to bioinformatics.

info@bgi.com
www.bgi.com

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