Proteomic Analysis of Cell Surface Proteins with Improved Specificity of Enrichment

Betsy Benton, Sergei Snovida, Katherine Herting, Hongbin Zhu, John C. Rogers, and Barbara Kaboobd, Thermo Fisher Scientific, 3747 North Meridian Rd., Rockford, IL, 61101

ABSTRACT
Enrichment of cell surface proteins is commonly performed by biotinylation using sulfhydryl-based chemistry; however, this method is often associated with nonspecific labeling and difficulty quantifying enrichment. A new method was developed and compared with Thermo Scientific™ Pierce™ Cell Surface Protein Isolation Kit. The new method improved yield of cell surface proteins and significantly reduced background compared with the old method. Samples were prepared in duplicate from HeLa cell lines using both methods and analyzed by LC-MS/MS. Results indicated that the new method identified 5 fold more cell surface proteins and 4 fold more sialylated proteins with higher abundance than the old method.

INTRODUCTION
Cell surface proteins are a rich source of therapeutic targets for disease, and play a major role in overall cellular function. Cell surface proteins are commonly isolated with biotinylation using sulfhydryl-based chemistry; however, this method is often associated with nonspecific labeling and difficulty quantifying enrichment.

MATERIALS AND METHODS
Sample Preparation (See Figure 2)
Intracellular cell surface proteins Isolation of cell surface proteins

RESULTS
Enrichment of cell surface proteins

CONCLUSIONS
The new method improved yield of cell surface proteins and significantly reduced background compared with the old method. Samples were prepared in duplicate from HeLa cell lines using both methods and analyzed by LC-MS/MS. Results indicated that the new method identified 5 fold more cell surface proteins and 4 fold more sialylated proteins with higher abundance than the old method.

TRADEMARKS
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