Abstract

Protein phosphorylation is a regulatory mechanism that cell growth, differentiation, and development are in control of signaling. Phosphorylation determines the protein function and is involved in the regulation of the cell cycle, cell adhesion, and cell death. The balance of phosphorylation is important for cell growth and function. An imbalance of phosphorylation can lead to various diseases, including cancer. Therefore, the study of cell signaling pathways is crucial for understanding the mechanisms of various diseases and for developing targeted therapies.

Results

The results obtained by Bio-Plex assay were significant between control and Gefitinib treated mice for each phosphoprotein measured. The results confirmed equivalence of total phospho-proteins measured in Bio-Plex assay can be used to detect phospho-proteins from cell lysate and tissue samples and suggest that the Bio-Plex assay would be applicable for use in clinical samples.

Methods

For the in vivo study, HCC827 cells (non-small cell lung cancer) were treated with 100ng/ml Gefitinib or vehicle (DMSO) intraperitoneally (i.p.) on day 100. Control cells were treated with vehicle (DMSO) intraperitoneally (i.p.). For the in vitro study, 1x10^6 HCC827 cells were implanted subcutaneously into nude mice (Taconic). Tumor volumes were measured every other day until endpoint day 30. All mice were administered 15mg/kg of gefitinib dissolved in 0.9% saline 4x per week. Tissue samples were harvested after endpoint day 30 and fixed in 10% buffered formalin. Tissues were embedded in paraffin and sections were stained with hematoxylin and eosin.

Conclusions

The Bio-Plex assay was able to detect phospho-proteins from cell lysate and tissue samples. The Bio-Plex assay was found to be a reliable method for detecting phospho-proteins in clinical samples.

Comparison of Bio-Plex® Assays to Immunohistochemistry (IHC) for Measuring Phosphorylated Proteins in an In Vitro and In Vivo Model of Lung Cancer

Kathleen Rogers, Katherine Crosby, Jeremy Frideri, Michael Lewis, Bradley L. Smith and Regis Drost-Pick • Cell Signaling Technology, 3 Tower Lane, Danvers, MA 01923

Introduction

Receptor tyrosine kinases (RTKs) mediate growth, differentiation, and developmental signals to control cell attachment, plaque formation, and proliferation. RTKs are involved in the regulation of cell cycle, cell adhesion, and cell death. An imbalance of RTK phosphorylation can lead to various diseases, including cancer. Therefore, the study of cell signaling pathways is crucial for understanding the mechanisms of various diseases and for developing targeted therapies.

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