

Elucidation of small molecule markers in cancer cells by NMR and mass spectrometry

Greg Heffron

Harvard Medical School, USA

Abstract

Metabolic signatures of cell transformation in various cancers are of keen interest in gaining a better understanding of how oncogenes and proteins are expressed, and may potentially aid in the identification of suitable targets for therapeutic interventions. A platform based primarily on NMR spectroscopy that allows a relatively straightforward investigation of altered metabolite levels in cell extracts or other biological fluids will be presented and discussed. Application of the proposed methods to several types of cancer cells will also be presented, with an emphasis on identification of potentially interesting bio-markers. An example of pathway analysis and marker validation will provide a possible link between observed metabolite levels and genetic modifications in a cell model of chronic myelogenous leukemia.

Biography

Greg Heffron did his undergraduate study in Chemistry at LeMoyne College and graduate studies in biophysics at Syracuse University. His main interests include studies of differential metabolite levels in cancer cells by NMR spectroscopy. He is currently the Director of the Bio-molecular NMR Facility at Harvard Medical School.