

1 Introduction

1.1 Proteomics

Proteomics is the study of the total proteins from a particular cell line, tissue, or organism and biological fluids. This field includes three main approaches: expression proteomics, cell-map proteomics, and structural proteomics. Expression proteomics (also called “differential expression proteomics”) is the study of global changes in protein expression. Cell-map proteomics is the systematic study of protein–protein interactions. Structural proteomics involves the determination of three-dimensional protein structures on a genome wide scale. Structures are determined via experimental techniques (crystallography and NMR) and computational studies. Proteomics has been an important developing area of research for the past two decades. Advances in technology have led to a rapid increase in applications to a wide range of samples; from initial experiments using cell lines, more complex tissues and biological fluids are now being assessed to establish changes in protein expression.