

## Proteomics – A Scientific Field of Protein Analysis

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### INTRODUCTION

Proteomics is the branch of biology which has very vital role in the human life. Proteomics means complete protein analysis of a genome. We take here the example of human genome. So, in human genome there are certain genes which encodes for a specific protein. A complete protein profile analysis of a genome and their study, interrelations and biochemical interferences is called proteomics. Proteomics has revolutionized the human life by providing a road to the success in identifying genes end product which is called protein. So, the study of proteome is called proteomics as proteome means protein analysis of a genome. The term Proteomics was coined by Wilkins in 1996. The proteomics of eukaryotic cells is very complex and containing many procedures but of prokaryotic cells is so simple. This field of study is very important for early diseases diagnosis, the prognosis and monitoring of disease development, spreading and end outcomes. It has also a vital role in drug manufacturing because through it we are very able to know that this drug will induce which changes by releasing the proteins. This branch is also important to know about the cell functionality. Cell functions are described by the proteomics analysis. The gene expression is different at outside the body and inside the body. There are different techniques in proteomics by which we can purify proteins and these include chromatography, SDS-PAGE, ELISA and 2D-DIGE. There are different protein chips synthesized for the analysis of proteomics. By the usage of these techniques, the proteins are purified and analyzed that which protein will lead to which end product by encoded gene signaling. The protein analysis is also important in the field of bioinformatics like human genome project has been completed by adopting different techniques.

Suppose, there is a gene if it is ATT and encodes for valine and valine is well working if the bases are ATT but if ATT is altered with TAT and now it encodes for isoleucine. So, this isoleucine is not working well in the cell and it is cell abnormality. This is called a disease. So, same is the example of cancer. Cancer is diagnosed by certain factors and these factors produce a different end product called protein. Bioinformatics is also an important field of biology. This deals with the complete details on genome basis of a living thing and this is described by proteomics. The researchers check the genes in a genome up to end level that which protein will be produced by that gene. And this field of science is a miracle for all over the world including researchers and typical people. First of all, there is a process of protein purification. We purify the proteins as if are extracellular then no need for cell lysis but if these are inside the cell. So, we need to purify the protein by cell lysis. For this, different chemicals are used and after this, proteins are centrifuged and protein

is isolated from the cell other particles. After purification, the proteins are studied via different channels like SDS-PAGE, 3D-PAGE and many others.

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