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Solutions for target discovery and bio-therapeutics

Shubhendu Seal

GE Healthcare Life Sciences, India.
E-mail: shubhendu.seal@ge.com

Cytokines, growth factors, hormones and other regulatory peptides and proteins are commonly used bio-therapeutics. Targeted therapy, such as therapeutic antibodies directed against specific cancer/ diseased cells related cell surface proteins, offers more efficient treatment for various cancers and life-threatening diseases. Advances in the use of antibodies for the treatment of disease has driven demand for new antibody formats designed to improve the efficacy of the therapy and to reach new targets. Discovery of therapeutics and their novel targets require accuracy and specificity. Two platforms of GE Healthcare work hand-in-hand to provide a streamlined solution to find novel therapeutic and diagnostic targets for drug discovery. Comparative proteomics approach is commonly used for discovery of novel drug targets as well as diagnostics markers. 2D-DIGE is a powerful technique to find differentially expressing proteins between test and control samples taking care of in-population proteome variations. Once the target is discovered, drug molecules as well as antibodies can be designed to control the regulation/activity or to target the cancer/diseased cells. Biacore is SPR based platform, used for kinetic and thermodynamic characterization of potential therapeutic molecules which can be further selected as per their performance. Therapeutic discovery also requires PK-PD and ADME studies to be performed by using various analysis modules of Biacore systems. In bio-therapeutics, Biacore assays can be used from identification of clone, up-stream conditions for good protein expression, kinetic and thermodynamic characterization along with immunogenicity testing of the bio-therapeutic. Both the techniques of 2D-DIGE and Biacore provide a solution to expedite the discovery of novel targets and bio-therapeutics.