Abstract

Title: Chemical biology approaches to modulating protein functions

After the completion of the human genome project, it is estimated that there are up to 10,000 disease related genes in the human genome. The goal in post-genomic era would be to understand and control the functions of each gene. Therefore, there is a great interest in developing molecules capable of modulating these disease-related proteins. They could not only serve as probes to delineate the protein functions, but also be further developed as therapeutic candidates. However, it is very challenging to deal with such overwhelming numbers of target proteins to discover molecules of each protein. Here I will present our approaches to modulating proteins functions, which include the development of a novel class of molecules, new methods for modulating cellular proteins, and ultra high-throughput screening methods for rapid identification of protein ligands.