세미나 초록

성명	최 종 현
소속	한국생명공학연구원
발표 주제	A novel strategy for the controlling functional expression level of target pathway/enzyme for metabolic engineering
발표 내용	Functional and structural proteins are key features of modern biotechnology in all of its various facets—sometimes categorized in color terms as Green (agriculture), White (industrial) and Red (medicine), among others—well as synthetic biology. Many recombinant proteins/enzymes have been successfully expressed in bacteria. However, in many cases, target proteins/enzymes are not functionally expressed, and form inactive inclusion bodies in bacteria. Therefore, it is difficult to optimize the expression level for the production of biochemicals. In this study, we developed a novel strategy for enhancing and controling functional expression level of heterologous proteins/enzymes. We designed expression constructs containing randomly distributed substitutions of synonymous codons in the 5'-coding region of genes and screened variants significantly increasing functional expression level through replacing the first ten variable codons with synonymous codons. This strategy, requiring small library in size without using complex bioinformatics tools, is effective in enhancing and controling functional expression level without changing primary structure of a target protein. We also can apply for metabolic engineering of host.