Application of systems metabolic engineering to produced large sized recombinant protein – spider dragline silk protein – in *Escherichia coli*

정해나, Xiao-Xia Xia, 이상엽*
KAIST
(leesy@kaist.ac.kr*)

Spider silk attract many industrial applications due to its outstanding physical strength and characteristics. However, expressions are limited due to the extensive secondary structure from the repetitive sequences in mRNA, and the structures decrease ribosome processivity and facilitate mRNA degradation. Here, we present strategies to solve biological problems that occur using the naturally found protein, spider dragline silk protein: increasing available ribosome pool and stabilizing mRNA to stop degradation.From the results, approaches to control translation efficiency of proteins containing high molecular weight and highly repetitive sequence can be found. [This work was supported by the Converging Research Center Program (2009-0082332) of the Ministry of Education, Science and Technology (MEST) and Intelligent Synthetic Biology Center (2011-0031963) through the Global Frontier Research Program of MEST. Further support by the World Class University Program (R32-2009-000-10142-0) of MEST through the National Research Foundation of Korea is appreciated.]