# Metabolic engineering of Esherichia coli for production of ultra-molecular weight spider silk

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Naturally existing spider silk and elastin protein received a lot of attention from industry due to its outstanding physical properties. However, the repetitive sequences in mRNA create extensive secondary structures and cause decrease of ribosome ability and mRNA degradation. In this study, as producing the spider dragline silk protein, we developed techniques to solve biological problems that occurred. The newly synthesized native-size spider dragline silk protein produced increased titer than those reported previously. The results provide insight to control expression of useful recombinant proteins containing high molecular weight and highly repetitive sequence. [This work was supported by the Technology Development Program to Solve Climate Changes on Systems Metabolic Engineering for Biorefineries from the Ministry of Science and ICT through the National Research Foundation (NRF) of Korea (NRF-2012M1A2A2026556 and NRF-2012M1A2A2026557); the Intelligent Synthetic Biology Center through the Global Frontier Project (2011-0031963) of the Ministry of Science and ICT through the National Research Foundation of Korea]