Analyzing Protein Activity and Stability Using a High-Throughput Linear Expression Template System

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The protein production industry has a revenue of over $160 billion per year and has many applications, including the creation of vaccines, cancer drugs, and enzymes for chemical manufacturing. However, there are many difficulties associated with protein production, including purification, retention, and stability which increase the current cost of production. Using our linear expression template cell-free protein synthesis system we developed, we can produce significant amounts of protein from a gene template in just 3-8 hours and then rapidly assess protein activity and stability. There are many downstream applications to the process we have developed. For example, this system can help reduce the cost of using biocatalysts which will advance environmentally friendly production techniques. It can also decrease the cost of protein production for other purposes such as vaccine, cancer drug, and other pharmaceutical production.