

Construction of Synthetic Intact Human Parathyroid Hormone Gene and Testing the Transformation Efficiency and Expression of it in *E. coli* strains

Abstract

human parathyroid hormone gene (hPTH gene) is responsible for preproparathyroid hormone production (biologically inactive hormone) which further modified to form the biologically active hormone, a synthetic *hPTH* gene with 289bp which cod for active intact hPTH was constructed by Five long primers by splicing overlap extension PCR (SOE), the gene contain a de generated codon, and have two recognition site of restriction enzymes in both ends of the Gene, and a stop codon. The synthetic *hPTH* gene was transformed in two *E. coli* strains DH5 α and BL21 (DE3) with transformation efficiency 6.6×10^6 and 3.4×10^6 for both isolates respectively. And the transformation of gene was detected by extraction of constructed plasmid and amplification of cloning gene on it, the expression of the cloning gene in the BL21 (DE3) was detected by performing Real Time PCR which gave a Ct value of about (23.46). That makes the synthetic gene suitable for direct expression of human active protein inside the bacterial cells.