

Original Paper

## Heterologous expression of Salmon Calcitonin in *Escherichia coli*

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### Abstract

**Background and Objective:** Calcitonin is a small peptide hormone including 32 amino acids and 3.4 KD molecular weight which is produced by the parafollicular cells of the thyroid gland in response to increasing calcium ions in serum. This peptide is used for adjuvant therapy of osteoporosis, Paget's disease and hypercalcemic shock. In this study, the heterologous expression of calcitonin was done in *Escherichia coli*.

**Methods:** In this experimental study, the thioredoxin fusion partner was added to n-terminal of the Salmon calcitonin in order to increase its stability by the synthetic biology. The recombinant construct was transformed and over expressed into *Escherichia coli* BL21 (DE3) host cell.

**Results:** SDS-PAGE analysis showed the over expression of recombinant protein after IPTG induction.

**Conclusion:** In this study, the construct including fused Salmon calcitonin gene with thioredoxin was cloned. The SDS-PAGE result showed the stable expression of fused calcitonin.

**Keywords:** Calcitonin, Thioredoxin fusion tag, Over expression, Peptide hormone

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