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بحث

Genetic Engineering of mutant *sak* enhanced by Cs^{137} radioactive sources express for mutant staphylokinase by M13 cloning vector transformed into *E. coli* DH5α and its medical applications for thrombosis therapy

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Abstract

Objective: The aim of this research is to study the increase production of mutant thrombolytic enzyme after genetic engineering of the encoded *sak* gene into radioactive mutant staphylokinase (thrombolytic enzyme).

Background: Genetic engineering, recombinant DNA technology and biotechnology are used to reveal the complex processes of how genes are inherited and expressed, to provide better understanding and effective treatment for various diseases in genetic disorders and to generate economic benefits to improve of efficient production of valuable biopharmaceuticals.

Study design: Cross-Sectional study design in descriptive study design and Case- Control in analytic study design.

Methodology: The *sak* gene was extracted from the mutated *staphylococcus aureus* bacteria by radiation and the amplified into PCR (polymerase chain reaction) was carried out for it, then the product of the mutant *sak* gene was genetically engineered into M13 cloning vector and using the competent bacterial cells *E. coli* DH5α. The mutant *sak* was transformed inside *E. coli* DH5α bacteria, then the production of staphylokinase (thrombolytic enzyme) was examined on a plasma agar medium containing plasma.

Results and discussions: and it was found that the enzyme was more productive than before compared with control, that is, the process of genetic engineering (cloning) was useful by dissolve clot with seconds.