The development of single polypeptide chain insulin By Chenelle Etuk and Faculty Mentor: Dr. Ke-He Ruan University of Houston College of Pharmacy

Introduction

- More than 1 in 10 individuals in the United States have diabetes
- Insulin is a hormone patients use to control their blood sugar
- The rising costs of insulin and mental strain of the daily injection process has exhausted millions of patients

Objectives

- Insulin is formed by two polypeptide chains linked together by disulfide bonds.
- Objective: create a SPC (single polypeptide chain) insulin by linking A chain and B chain
 - Improvement of insulin treatment
 process
 - Dosage reduction
 - •Price reduction
 - Easier production process

Methods

- 1.Design of plasmid that contains cDNA sequence and GST tag
- 2.Transfect plasmid into E. coli
- 3.Amplification of target colony after growing E. coli
- 4.Use SDS PAGE to test protein expression
- 5. Purify target protein
- 6.Functional study
- 7.Inject into mice





--- TTG ACA ATT AAT CAT CGG CTC GTA TAA TGT GTG GAA TTG TGA GCG GAT AAC AAT TTC ACA CAG GAA ACA GTA TTC ATG TCC CCT ATA ... 621bp ... GGT GST tag GGC GAC CAT CCT CCA AAA TCG GAT CTG GTT CCG CGT GGA TCC CCG GAA TTC CCG GGT CGA CTC GAG CGG CCG CAT CGT GAC TGA CTG ACG ---G D H P P K S D L V P R G S P E F P G R L E R P H R D Stop

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Results



References

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