Biology lab cloning paper plasmid answer deflor

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Why do we cut both segments of DNA with the same restriction enzyme? Explanation: Restriction enzymes cut at specific sequences so the same restriction enzyme must be used because it will produce fragments with the same complementary sticky ends, making it possible for bonds to form between them. There are certain compatible restriction sites that can be used together.

What is cloning in plasmids? In a typical cloning experiment, a target gene is inserted into a circular piece of DNA called a plasmid. The plasmid is introduced into bacteria via a process called transformation, and bacteria carrying the plasmid are selected using antibiotics.

Why is plasmid a suitable DNA cloning vector for gene cloning process? Many bacterial plasmids carry genes for antibiotic resistance, a property that can be exploited to select those cells that have been successfully transfected; if the bacteria are grown in the presence of the antibiotic, only cells containing plasmids will survive.

What is a recombinant plasmid? A recombinant plasmid is a plasmid into which a foreign DNA fragment or gene has been inserted. Plasmids are small circular pieces of DNA that exist naturally in bacterial cells and in some eukaryotes such yeasts and plants. Recombinant plasmids replicate independently from the host's chromosomal DNA.

Why do we cut the plasmid and the fragment with the same restriction enzyme? The same restriction enzyme must be employed because they cut at specified sequences and generate fragments with identical complementary sticky

ends, which enable bonds to form between them.

Why use more than one restriction enzyme to cut DNA? Using two different restriction enzyme sites can help ensure the correct orientation of the gene of interest when it is inserted and prevent the plasmid vector from ligating with itself.

How to choose restriction enzymes for cloning?

How to choose a plasmid for cloning?

How is a plasmid cut? Each plasmid has a set of known restriction enzymes in the MCS. So you cut the plasmid with an enzyme or two enzymes and generate a linear plasmid with sticky ends. Then you cut the insert with the same or a compatible enzyme(s) to generate the same sticky ends.

How do plasmids work? Plasmids are physically separate from chromosomal DNA and replicate independently. They typically have a small number of genes — notably, some associated with antibiotic resistance — and can be passed from one cell to another.

What is an example of a plasmid? Plasmids are also found in higher organisms such as yeast and fungi. The 2 micron circle of yeast (discussed later) is a well-known example that has been modified for use as a cloning vector. Most plasmids are circular, made of DNA, and much smaller than chromosomes.

What is commonly used plasmid cloning vector? One of the earliest commonly used cloning vectors is the pBR322 plasmid. Other cloning vectors include the pUC series of plasmids, and a large number of different cloning plasmid vectors are available.

Why must the same restriction enzyme be used on both sources? The restriction enzymes cuts at fixed sequences, therefore same restriction enzyme must be used since it forms fragments with complementary sticky ends, therefore facilitating the formation of bonds between them.

Why is DNA cut with the same enzyme? If two different pieces of DNA are cut with the same restriction enzyme or with different enzymes that generate the same overhang, the same sticky ends are generated. This allows fragments of DNA from

two different original DNA molecules to be bound together by matching the sticky ends.

Why is it essential that the same restriction enzyme be used to cleave cut the DNA of both organisms used to create a transgenic organism? Answer and Explanation: The same restriction enzyme must be used to excise both vector and the organism DNA because when a single restriction enzyme cuts two specific DNA fragments, this will form sticky ends that are similar and complementary.

Why must the DNA to be joined together be cut with the same restriction endonuclease before DNA ligase is used? The plasmid is cut with the same restriction enzymes so it gets the same sticky ends. The sticky ends on the plasmid stick with the ones on the gene. The gene and the plasmid are joined together using an enzyme called DNA ligase close ligaseAn enzyme that can join pieces of DNA together..

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