

Module 6: DNA, RNA, and Molecular Genetics

Topic 5 Content: DNA Fingerprinting and Cloning Notes


Introduction

DNA Fingerprinting and Cloning

DNA Fingerprinting

Cloning

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DNA fingerprinting and cloning are two very different types of genetic engineering. DNA fingerprinting uses certain segments of DNA to identify individuals. Cloning involves creating an exact genetic replica of an organism. In this interactivity, click each tab to learn about DNA fingerprinting and cloning.

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Cloning

DNA fingerprinting uses segments of DNA that are the most unique to individuals. The sections of DNA that do not code for specific proteins vary greatly among individuals. These sections are called introns, and scientists use restriction enzymes to cut intron segments of DNA to compare the banding patterns. These segments are able to be used to identify individuals. DNA information is often taken by law enforcement officials as evidence in investigations, and can be stored in DNA databases for future use as well.

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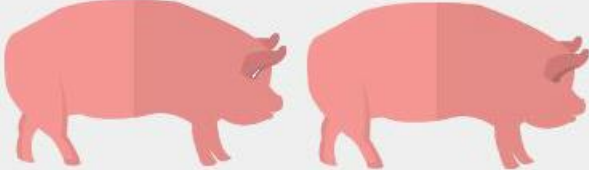
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Cloning

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Cloning



Cloning is another application of genetic engineering technology. Cloning can include one, many, or an entire organism's cells. A clone is an organism with the exact genetic material or DNA as another cell or organism. Cloning can include replicating identical fragments of DNA, cells, or entire organisms. Molecular cloning is when fragments of DNA or genes are cloned. An example would be recombinant DNA. When recombinant DNA replicates, each time it is considered a clone of the original recombinant DNA.

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