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using recombinant dna technology to modify an organism s dna to achieve desirable traits is called genetic engineering addition of foreign dna in the form of recombinant dna vectors that are generated by molecular cloning is the most common method of genetic engineering using recombinant dna technology to modify an organism s dna to achieve desirable traits is called genetic engineering addition of foreign dna in the form of recombinant dna vectors that are generated by molecular cloning is the most common method of genetic engineering key points dna cloning is a molecular biology technique that makes many identical copies of a piece of dna such as a gene in a typical cloning experiment a target gene is inserted into a circular piece of dna called a plasmid cloning the process of generating a genetically identical copy of a cell or an organism cloning happens often in nature as when a cell replicates itself asexually without genetic alteration or recombination learn more about cloning experiments cloning techniques and the ethics of human reproductive cloning the molecular and cellular techniques of

modifying them to achieve desirable traits cloning may involve cloning

small dna fragments molecular cloning or cloning entire organisms

reproductive cloning there are three different types of artificial cloning

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produces copies of genes or segments of dna reproductive cloning

produces copies of whole animals genetic engineering has advanced the

understanding of many theoretical and practical aspects of gene function

and organization through recombinant dna techniques bacteria have been

created that are capable of synthesizing human insulin human growth

hormone alpha interferon a hepatitis b vaccine and other medically useful

substances the cloning of expressed genes and the polymerase chain

reaction pcr two biotechnological breakthroughs of the 1970s and 1980s

continue to play significant roles in science today both in the latter part of

the 20th century however the term came to refer more specifically to

methods of recombinant dna technology or gene cloning in which dna

molecules from two or more sources are combined either within cells or in

vitro and are then inserted into host organisms in which they are able to

propagate 1 cleavage of dna at specific sites by restriction nucleases

which greatly facilitates the isolation and manipulation of individual genes

2 dna cloning either through the use of cloning vectors or the polymerase

chain reaction whereby a single dna molecule can be copied to generate

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produced individual is a clone of the original monozygotic identical twins
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relates to genetics and genomics involves using scientific methods to
make identical or virtually identical copies of an organism cell or dna
sequence the phrase molecular cloning typically refers to isolating and
copying a particular dna segment of interest for further study the
molecular and cellular techniques of biotechnology allow researchers to
genetically engineer organisms modifying them to achieve desirable traits
cloning may involve cloning small dna fragments molecular cloning or
cloning entire organisms reproductive cloning cloning allows would be
parents to give their children the same genes as a pre existing person
whereas genetic engineering allows them to give their children genes that
have been intentionally designed modified or selected in the laboratory for
some particular purpose we have established a technique for the cloning
and heterologous expression of large biosynthetic gene clusters for type i
pks compounds using bacterial artificial chromosome bac vectors and

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the molecular and cellular techniques of biotechnology allow researchers to genetically engineer organisms modifying them to

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