Genetic technology

A-Level Biology · Vocabulary in context

Word	Example
recombinant /ˌriːˈkɒmbɪnənt/	**Recombinant** DNA contains genes from two different organisms. DNA
genetic engineering /dʒɪˈnetɪk ˌendʒɪˈnɪərɪŋ/	**Genetic engineering** puts a useful gene into another organism.
gene /dʒiːn/	A **gene** is a piece of DNA that codes for one protein. DNA
protein /ˈprəʊtiːn/	Meat, eggs and beans are rich in **protein**.
donor /ˈdəʊnə/	The **donor** gives the gene that will be moved.
reverse transcriptase /rɪˈvɜːs trænˈskrɪpteɪs/	**Reverse transcriptase** makes DNA from an RNA copy. RNA DNA
nucleotide /ˈnjuːklɪətaɪd/	A **nucleotide** is made of a sugar, a phosphate and a base.
introns /ɪnˈtrɒnz/	**Introns** are pieces of a gene that are cut out of the mRNA. mRNA
complementary DNA	**Complementary DNA** is DNA made from an mRNA copy. mRNA DNA
restriction endonuclease /rɪˈstrɪkʃn ˈendəʊnjuːklɪeɪs/	A **restriction endonuclease** cuts DNA at one exact sequence. DNA
ligase /ˈlɪgeɪs/	**Ligase** joins pieces of DNA together. DNA
plasmid /ˈplæzmɪd/	A **plasmid** is a small ring of DNA in a bacterium. DNA

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cloning vector /ˈkləʊnɪŋ ˈvektə/	A plasmid is used as a **cloning vector** to carry the new gene into bacteria.
polymerase /ˌpɒlɪməˈreɪz/	DNA **polymerase** joins new nucleotides to make a new strand. DNA
promoter /prəˈməʊtə/	A **promoter** is where RNA polymerase starts reading a gene. RNA
marker gene /ˈmɑːkə dʒiːn/	A **marker gene** shows which bacteria have taken up the new DNA. DNA
fluorescent /flʊəˈresənt/	The **fluorescent** protein glows green under blue light.
gene editing /dʒiːn ˈedɪtɪŋ/	**Gene editing** can change one letter of the DNA. DNA
genome /ˈdʒiːnəʊm/	The human **genome** is all of our DNA. DNA
polymerase chain reaction /ˌpɒlɪməˈreɪz tʃeɪn rɪˈækʃn/	The **polymerase chain reaction** makes millions of copies of a piece of DNA. DNA
clone /kləʊn/	A **clone** has exactly the same DNA as its parent. DNA
amplify /ˈæmplɪfaɪ/	PCR is used to **amplify** a tiny amount of DNA. PCR DNA
→ **gel electrophoresis** /dʒel ɪˌlektrəʊfoːˈriːsɪs/	**Gel electrophoresis** separates pieces of DNA by size. DNA
fragment /ˈfrægmənt/	Smaller DNA **fragments** move further through the gel. DNA
microarray /ˈmaɪkrəʊəreɪ/	A **microarray** tests thousands of genes at once.
database /ˈdeɪtəbeɪs/	Scientists put DNA sequences into a **database** that anyone can search. DNA

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amino acid /əˈmiːnəʊ ˈæsɪd/	Glycine is the simplest **amino acid**.
bioinformatics /ˌbaɪəʊɪnfɔːˈmætɪks/	**Bioinformatics** uses computers to study DNA and proteins.
insulin /ˈɪnsjuːlɪn/	**Insulin** lowers the level of sugar in the blood.
diabetes /ˌdaɪəˈbiːtiːz/	People with **diabetes** cannot control their blood sugar.
genetic screening /dʒɪˈnetɪk ˈskriːnɪŋ/	**Genetic screening** tests people for harmful alleles.
breast cancer /brest ˈkænsə/	Some alleles make **breast cancer** more likely.
Huntington's disease /ˈhʌntɪŋtnz dɪˈziːz/	**Huntington's disease** is caused by a dominant allele and damages the brain.
cystic fibrosis /ˈsɪstɪk fɪˈbrəʊsɪs/	**Cystic fibrosis** makes thick mucus that blocks the lungs.
gene therapy /dʒiːn ˈθerəpi/	**Gene therapy** puts a working gene into a patient's cells.
ethical /ˈeθɪkl/	Some people have **ethical** concerns about changing genes.
genetically modified organism /dʒɪˈnetɪkli ˈmɒdɪfaɪd ˈɔːgənɪzəm/	Golden rice is a **genetically modified organism**.
salmon /ˈsæmən/	GM **salmon** grow faster than normal salmon.
soybean /ˈsɔɪbiːn/	Many **soybean** crops are GM so they survive weedkiller.

DNA

GM

GM

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herbicide /ˈhɜːbɪsaɪd/	Farmers spray **herbicide** to kill weeds.
cotton /ˈkɒtn/	GM **cotton** makes its own poison against insects. GM
pest /pest/	An insect that eats crops is a **pest**.
primers	PCR uses two **primers** to mark where copying starts. PCR

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