

Inheritance, cystic fibrosis and genetic screening Define allele.	Inheritance, cystic fibrosis and genetic screening Define genotype and phenotype.
Inheritance, cystic fibrosis and genetic screening Define homozygote and heterozygote.	Inheritance, cystic fibrosis and genetic screening Define codominance, with an example.
Inheritance, cystic fibrosis and genetic screening What is the phenotype ratio from $Aa \times Aa$?	Inheritance, cystic fibrosis and genetic screening How does a pedigree show a recessive allele?
Inheritance, cystic fibrosis and genetic screening How does a pedigree show a dominant allele?	Inheritance, cystic fibrosis and genetic screening Why are X-linked recessive conditions more common in males?

Genotype: the alleles an organism has.
Phenotype: its observable characteristics.

One of the different forms of a gene.

Both alleles are expressed in the heterozygote, for example the I^A and I^B alleles giving blood group AB.

Homozygote: two identical alleles.
Heterozygote: two different alleles.

Two unaffected parents have an affected child.

3 dominant : 1 recessive.

Males have only one X chromosome, so a single recessive allele is expressed.

Two affected parents have an unaffected child.

Inheritance, cystic fibrosis and genetic screening

Can a colour-blind father pass colour blindness to his son?

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What protein is faulty in cystic fibrosis?

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How does the mutation cause thick mucus?

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Effect of cystic fibrosis on the digestive system?

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Effect of cystic fibrosis on the reproductive system?

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What is PGD?

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What is amniocentesis?

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What is chorionic villus sampling?

The CFTR protein, a chloride ion channel in cell-surface membranes.

No: sons inherit his Y chromosome. His daughters inherit the allele and become carriers.

Pancreatic duct blocked; enzymes do not reach the small intestine; poor digestion and absorption.

Chloride and so water are not secreted out of cells by osmosis, so the mucus is thick and sticky.

Pre-implantation genetic diagnosis: cells taken from IVF embryos are tested, and only unaffected embryos are implanted.

Males: blocked or missing vas deferens, infertility. Females: thick cervical mucus reduces fertility.

Taking placental cells (chorionic villi) from about 11 weeks to test the fetus's DNA or chromosomes.

Taking amniotic fluid with fetal cells using a needle (about 15 weeks) to test the fetus's DNA or chromosomes.

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Name a risk of prenatal tests.

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Give a social issue raised by genetic screening.

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Give a moral argument against embryo screening.

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Give a religious viewpoint on screening.

Discrimination by insurers or employers,
pressure on parents, or unequal access.

A small risk of miscarriage.

Some traditions hold life is sacred from
conception, so termination or discarding
embryos is wrong; others accept screening.

Embryos may have a right to life; selection
could lead to designer babies.