GeneKids

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Target audience

Our project is targeted at primary school children in 5th and 6th class.

What are genes and chromosomes?

Every person has a unique set of chemical blueprints affecting how our body looks and functions.

The blueprints are contained in our DNA. DNA are long spiral shaped molecules found inside each cell. The parts of DNA that contain the instructions for making specific proteins are called genes.

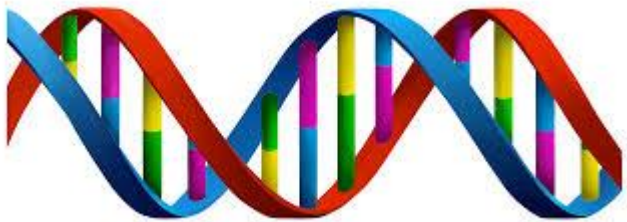
Each is like a recipe for different things, some control things like hair colour and others tell the body how to produce important enzymes.

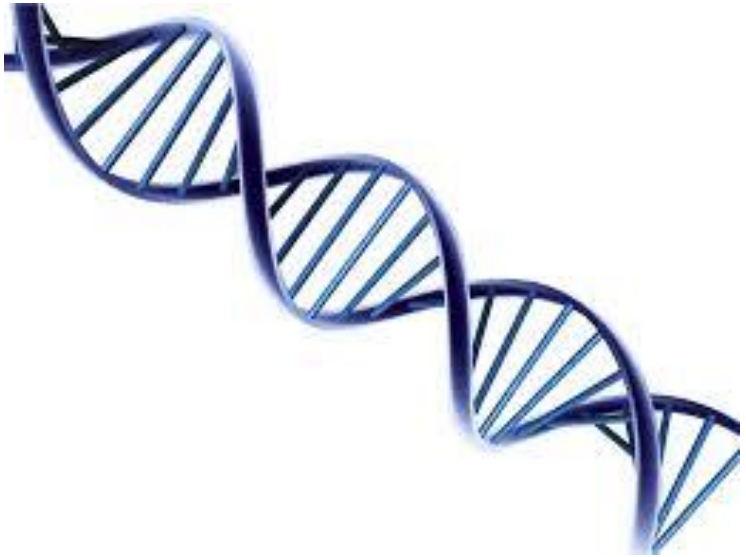
How genetic diseases are passed down?

Recessive traits

Dominant traits

X linked traits





Genetic Risk

Children, parents, and grandparents often share similar health problems. If a particular disease runs in your family, you may have inherited factors that put you at risk.

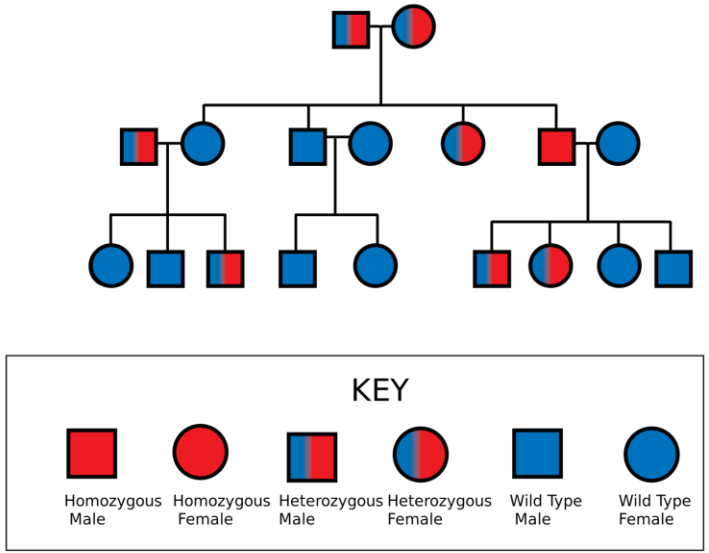
Inherited risk factors are passed down from parent to child by way of genes. All humans have the same genes, but different people have different versions of these genes.

Sometimes genetic differences cause disease. In rare cases, changing a single gene is enough to cause disease. But more often disease results from the combined effect of minor changes in multiple genes. Each gene then contributes in a small way to the symptoms.

What is a pedigree

A pedigree is a chart of the genetic history of family over several generations

Scientists or a genetic counselor would find out about your family history and make this chart to analyze



Abnormal number of chromosomes

When mistakes occurs as cells are dividing, it can cause an error in the number of chromosomes a person has.

Trisomy- There are three copies of one particular chromosome instead of two. Causes conditions such as Down syndrome, Edwards syndrome and Patau syndrome.

Monosomy- One member of a chromosome pair is missing. A baby with a missing chromosome has little chance of surviving. However babies missing a sex chromosome can survive in some cases. For example girls with turner syndrome.

DELETIONS, TRANSLOCATIONS AND INVERSIONS

Sometimes it is not the number of chromosomes that is the problem it is that there is something wrong with them.

Deletions -When parts are missing it is called deletion(if visible under a microscope) and microdeletion (if it is too tiny to be visible)

Translocations- bits of chromosomes shift from one chromosomes to another.

Inversions- It seems as though small parts of DNA are snipped out, flipped over and reinserted.

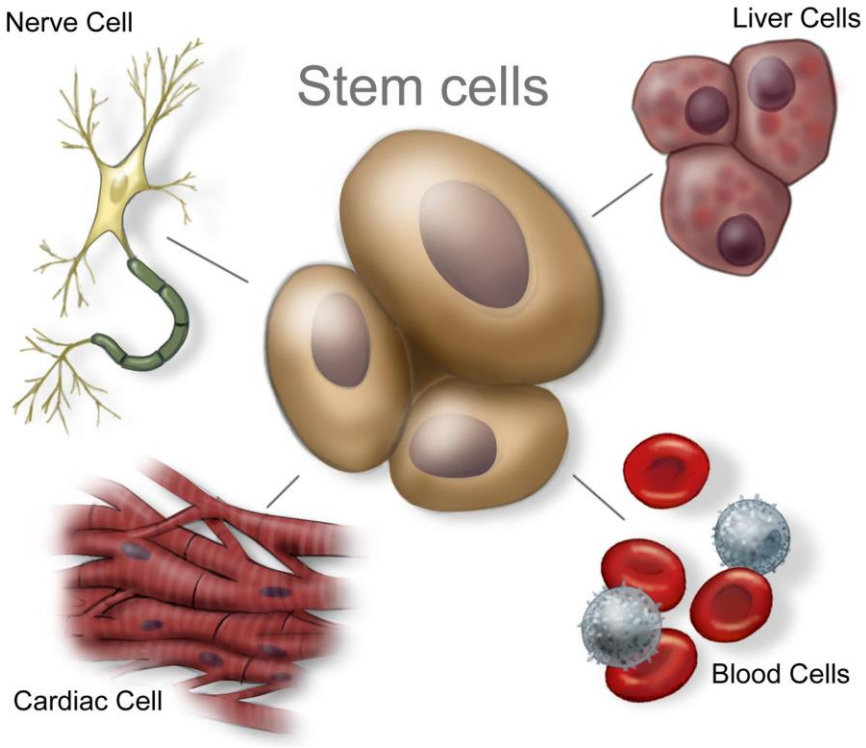
Treatments

Gene therapy

Stem cells

Pharmaceuticals

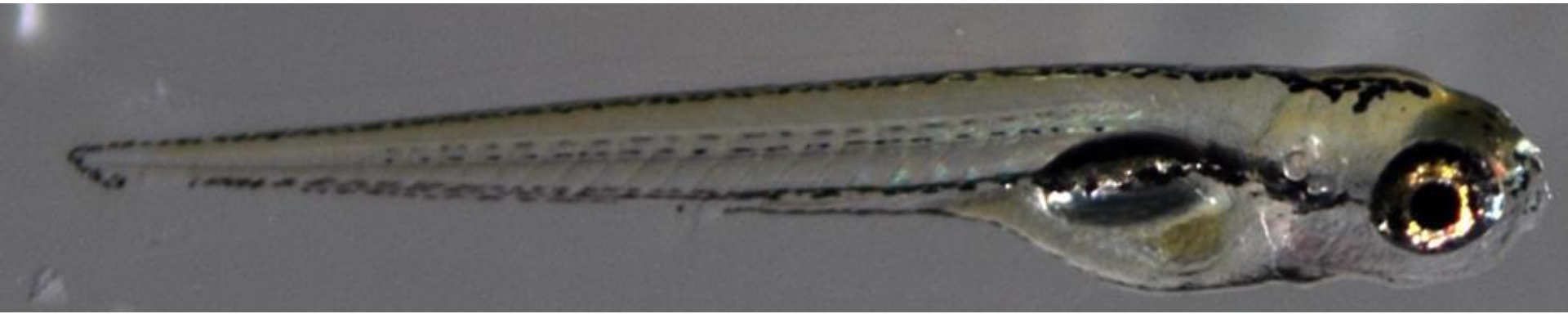
Engineering



Zebra fish

We looked at three types - Wildtype, sibling and mutant.

Experiments - Phenotyping, OKR Response, Genotyping, Pipetting.



Sources

www.kidshealth.org

www.learn.genetics.utah.edu