

How is ALD inherited?

Each person normally has one pair of sex chromosomes in each cell.

- Females have two X-chromosomes.
- Males have one X and one Y chromosome.

ALD is caused by mutations in ABCD1, a gene located on the X chromosome.

- A female with ALD has one good X-chromosome and one bad one.
- A male with ALD will have more severe symptoms of the disease than a female because a male only has one X-chromosome, and that chromosome is a bad one.

How are sex chromosomes passed on to children?

- A baby boy inherits his X-chromosome from his mother and his Y chromosome from his father.
- A baby girl inherits one X-chromosome from her mother and one X chromosome from her father.

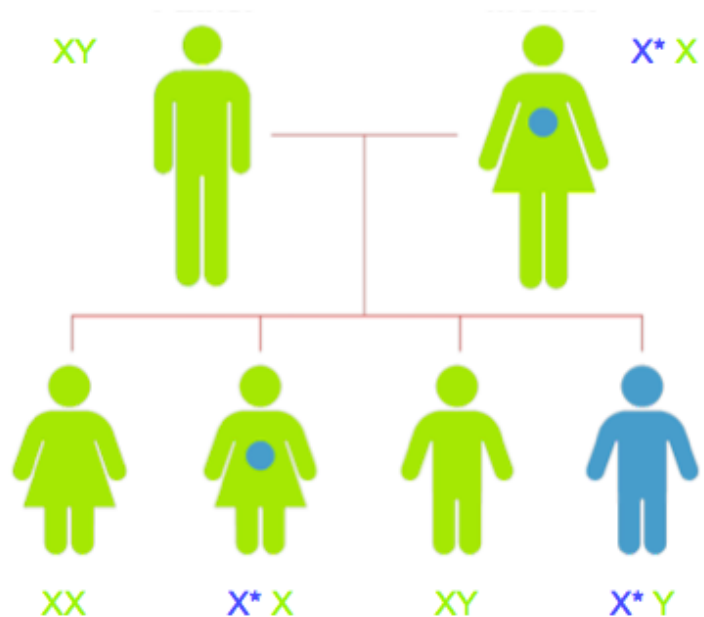
How is ALD passed on?

- Since a man with ALD only has one X-chromosome and it is bad, he will always pass it on to his daughters. However, he will not pass it on to his sons, since his sons will only get a Y chromosome from him.
- Half of the time, a woman with ALD will pass on her bad X-chromosome to her children, and the other half of the time she will pass on her good X-chromosome.

The images on the following page reflect this pictorially:

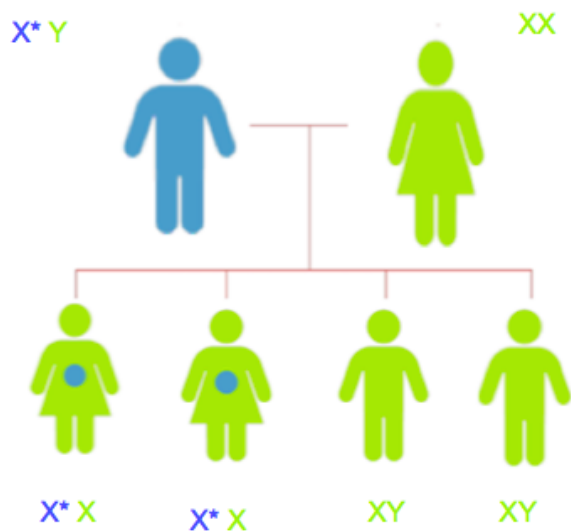
How is ALD inherited?

Possible reproductive outcomes for a woman with ALD



Overall, ALD Moms have a 50/50 chance of having an affected child, and boys are more likely to be severely affected than girls.

Possible reproductive outcomes for a man with ALD



Girls always inherit the mutation from Dad; boys never do.