

# CHANGES IN BLOOD CELLS IN BABIES BORN TO MOTHERS LIVING WITH HIV

The DNA in your cells is grouped into genes. These genes tell every cell in your body what to do, and how to do it. DNA methylation (**meth-ull-ay-shun**) is the process of how cells control which genes are turned on and off. This changes how cells in the body behave. We wanted to see if there were any differences in DNA methylation in the blood cells of babies whose mothers took antiretroviral medicines (ARVs) during pregnancy compared to mothers who did not.

## WHO PARTICIPATED



We looked at two groups: 300 babies whose mothers took ARVs during pregnancy, and 150 babies whose mothers did not take ARVs during

## WHAT WE DID

**Epigenetics** is the study of how genes express themselves based on many factors. The genes themselves do not change but can be activated in different ways depending on which part of the body they are in, the environment, or exposure to certain chemicals, for instance.



DNA Helix

We took blood samples from all of the babies and obtained DNA samples from the blood cells. We looked at DNA methylation in a few specific places to see how much was present. We then compared those amounts between the two groups of babies.

## WHAT WE FOUND



Babies exposed to ARVs *in utero*



had slightly less DNA methylation.

On average, babies from mothers who took ARVs during pregnancy had slightly lower levels of DNA methylation just after birth than the babies from mothers who didn't take ARVs. We did not find changes in babies' health due to these differences.

Specifically, the medication atazanavir led to the biggest differences compared to other drugs.

## WHAT WE LEARNED



Babies whose mothers took ARVs during pregnancy might have differences in their DNA methylation, and they might have changes in the way their genes work. We would like to conduct further research to see if these changes last longer than just at birth, and if they are related to any changes in health for the children. This might help us understand why some children experience poor health, and help us prevent that from happening.