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## Memories of Our Ancestors: Our Inherited Biology Revealed

We all grow up with stories, passed on by family members, that shape who we are. But some of what's passed on may not be told in words.

Neuroscientist Bianca Jones Marlin has been searching for our [biological inheritance](#): changes in the activity of our genes wrought by the experiences of those who came before us.

To uncover the lasting influence of stress, the [Marlin lab](#) taught male mice to associate the smell of almonds with a light shock to the paw. These mice grew more neurons in their noses for the almond smell, indicating a great sensitivity to the smell, compared to animals that were not trained to make this smell association. Even more remarkably, offspring of the conditioned mice also had a greater sensitivity to the smell.

"These mice are born with a change in their brain based on a 10-minute experience that their dad had before they were ever conceived," Dr. Marlin said. "How incredible is that?"

How are such experiences inherited? Dr. Marlin's team has been looking into stem cells, which can form many different types of cells, and exploring changes to the womb environment.

This field, transgenerational epigenetic inheritance, is a whole new way of thinking about genetics. It could influence how we think about post-traumatic stress disorder and other conditions connected to malnutrition, neglect and trauma. It also aligns with what people say they feel in their bones: that their family members' lives, even before they were born, matter.

"Many of us have the sense that we've inherited something deep from our relatives," said Dr. Marlin. "We're uncovering a scientific basis for that intuition."

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