

Title: Breakthrough: The Trauma Tracer

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Short Description:	Follow Bianca Jones Marlin as she uses cutting-edge neuroscience to uncover how the effects of trauma can be passed down from generation to generation.
Long Description:	<p>Growing up, “family” meant something very different to Bianca Jones Marlin. Her biological parents provided foster care to multiple children, giving Marlin the joy of having many siblings from an array of different backgrounds. On occasions, she would stay up late listening to the stories from her siblings' past homes—stories filled with trauma and sadness. These stories had a profound and lasting impact on Marlin.</p> <p>“There were stories of abuse, of not getting the proper nutrition or proper care that a child would need,” Marlin says. “Taking my passion for science and what I’ve learned from them, and putting them together is really my angle.”</p> <p>Today as a neurobiologist, Marlin researches how trauma can be passed down from generation to generation. At Columbia University’s Zuckerman Institute, she studies the molecular mechanisms of stresses in parents that can affect the brain structure and sensory experiences of their future offspring.</p> <p>Marlin’s investigations examine a process known as epigenetic inheritance, in which biochemical markers acquired from experiences or environmental conditions can alter how our genes are expressed inside of cells. In the case of the mice she works with, Marlin creates a stressful association with a particular odor, which in turn increases the number of olfactory cells inside the mices’ brains used to detect that specific smell. She then looks at whether or not</p>

	<p>the offspring are born with more of these olfactory cells as a result of their parent's trauma. If that proves to be true, Marlin plans to find and potentially even modify the epigenetic switches responsible for changing the children's biology or behavior—ultimately improving the outcomes for the children.</p> <p>“This is a proxy to the human experience because during a traumatic event, we are still using our senses to create those memories,” says Marlin. “What we’re exploring is if these memories are actually then passed down to the subsequent generations and what that would look like biologically.”</p>
Production Credits:	<p>Directed and Produced by Chelsea Fiske Director of Photography Luke Groskin, Brandon Swanson, Devin Powell Edited by Erika Sutter and Luke Groskin Animations by Lottie Kingslake Music by Audio Network Series Producer Luke Groskin Additional Photos And Videos by Bianca Jones Marlin, Pond5, Shutterstock, OX Creative/Film Supply, Evolve Studios Beedbank WW2 NIOD Institute for War, Holocaust and Genocide Studies Project Advisors for HHMI Tangled Bank Studios Richard Stone and Aileen O’Hearn</p>
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