

Neuroscientist Catherine Dulac challenges misperceptions about ‘male’ and ‘female’ instincts

Though she is trained as a developmental biologist, [Catherine] Dulac takes her research into territory usually explored by social scientists by trying to discern the balance of genetic determination and environmental influence that shapes vital behaviors in mammals. Moreover, she deploys the genetic tools of modern biology to discover the mechanisms that activate these behaviors.

Relatively early in her career, Dulac’s investigations into how animals detect pheromones changed our understanding of what those airborne chemicals may signify to the brain. More recently, her experiments identified how the brain circuitry that regulates crucial mating and parenting behaviors works — at least in her model animals, which are mice. She found astonishing evidence that although certain of these behaviors are often described as “male” or “female,” both types of circuitry are present and potentially active in both sexes. As a result, the right combination of triggers can [switch an individual creature’s behavior](#) to that of the opposite sex.

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Scientists are still exploring the full implications of her findings, but Dulac and others are hopeful that they might yield useful insights into conditions like postpartum behavioral disorders. Because of her work’s relevance, in September Dulac, just age 57, was awarded the \$3 million [Breakthrough Prize in Life Sciences](#), the richest single personal award in the scientific world.

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