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You Are What Your Mother Ate: The New Science of Epigenetics

Introduction:

Seven years after the completion of the Human Genome Project, we live in a world where cataloging the entire genetic sequence (genome) of an organism is a routine, rapid, and increasingly less expensive endeavor. One thing that these “blueprints” have made clear is that despite an incredible degree of genetic similarity, there remains a lot of unexplained biological diversity that cannot be accounted for by variation in our genetic (DNA) sequence alone. In fact, scientists are beginning to appreciate that there is another code of “punctuation marks” overlaying our DNA sequence: epigenetic modifications. This lecture will explore what epigenetics is and what is known about how it affects us and our offspring, current research that is beginning to make sense of the epigenetic code and the environmental factors that can influence it, how this new science got its start and where it is heading. We hope you leave with a better understanding of how to some degree, in ways scientists do not currently understand, “you are what your mother ate.”

Speakers:



Daniel Lieber is a third year graduate student in the Systems Biology department at Harvard. His work focuses on understanding mitochondria, the energy-producing organelles found in nearly all cells in our body. Outside of lab, Danny enjoys running along the Charles, exploring the restaurants and sights of Boston, and going on weekend trips to Vermont.



Kerry Samerotte is a fifth year graduate student in Harvard's department of Organismic and Evolutionary Biology. She studies how selection that prevents proteins from folding incorrectly has left behind patterns in our genes.



Brian Beliveau is a third year graduate student in the Genetics and Genomics program at Harvard Medical School. His research centers on understanding how chromosomes are organized within the cell and distributed at cell division. Brian

grew up in Newburyport, MA. When not in lab, he is often found experimenting in the kitchen, running, and biking.