Emily P. Balskus, PhD, Wins National Blavatnik Award for Young Scientists

The award is for her work “identifying the novel chemistry of the gut microbiome and deciphering its role in human health and disease.”

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Emily P. Balskus, PhD (Damon Runyon-Rachleff Innovator ’14–’16), received the Blavatnik National Award for Young Scientists in Chemistry, the largest unrestricted scientific prize ($250,000) offered to the most promising, faculty-level scientific researchers in the United States. Balskus, a chemical biologist at Harvard University, is being recognized for her “transformative work identifying the novel chemistry of the gut microbiome and deciphering its role in human health and disease.”

The human gut is home to trillions of microorganisms—bacteria, fungi and viruses—collectively known as the microbiome. Early on, Balskus recognized that incorporating the tools and perspective of a chemist into studies of the microbiome could lead to unprecedented discoveries and revolutionary advances at the interface of chemistry, enzymology, and microbiology. “As my scientific career progressed, I became fascinated by the chemistry occurring within living organisms. I’m drawn to microbes because of the huge gaps in our understanding of how they affect human health, and I hope that my lab’s research will someday lead to new therapeutics,&rdquol said Balskus.

Understanding how microbes function at a molecular level in the human gut is essential to finding new targets for the development of drugs that may help prevent and treat conditions like colorectal cancer and inflammatory bowel disease.

One of Balskus’ signature achievements is unravelling how the common gut bacteria Eschericia coliproduces colibactin, a substance that causes DNA damage and has been implicated in the development of colorectal cancer. More recently, Balskus and colleagues identified bacteria that are responsible for degrading the drug levodopa (L-dopa), the primary treatment for Parkinson’s disease, and demonstrated how to stop this microbial interference.

“Emily is leading breakthrough research on the human gut microbiome and deciphering its role in health and disease. We are proud to have funded her research when she started out on this path to discover, understand, and manipulate microbial metabolism,” says Yung S. Lie, PhD, Damon Runyon Cancer Research Foundation president and CEO.

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