

COLUMBIA | Zuckerman Institute

MORTIMER B. ZUCKERMAN MIND BRAIN BEHAVIOR INSTITUTE

Mind Brain Behavior Symposium is a Meeting of Minds

~ Columbia's Zuckerman Institute hosts gathering of leading neuroscientists from across the country ~

Date: Wednesday, May 15, 2019 11:00 am ET

Contact: Anne Holden, anne.holden@columbia.edu, 212.853.0171

NEW YORK — More than twenty years ago, Catherine Dulac, PhD, identified the first-known pheromone receptors. She was postdoctoral fellow at the time, working with Columbia University's Richard Axel, MD.

Now a Harvard professor, Dr. Dulac teamed up with her mentor again last week, for the Zuckerman Institute's inaugural Mind Brain Behavior Symposium. The event celebrated the creation of the Institute and brought together some of the leading minds in neuroscience, many of whom got their start in science at Columbia.

Speaking to an audience of hundreds at The Forum, a space for sharing ideas on the University's new Manhattanville campus, the all-star lineup of scientists shared their latest research on how the brain develops and gives rise to behavior.

"The brain is the most complex, the most mysterious and the most interesting structure in our universe," said Dr. Axel, Nobel laureate and codirector of the Zuckerman Institute, introducing the event with a question. "Perception, emotion, cognition, memory and action are represented by the activity of groups of connected nerve cells. How?"

Kicking off two days of mind-boggling talks, Dr. Dulac presented new research on a behavior that cuts across the animal kingdom: the act of parenting one's young. Her lab has identified many of the chemicals, genes and brain cells that govern how an animal cares for — or cares little for — its children.

"We're trying to understand the processes of social interactions," said Dr. Dulac. "We now have a sophisticated view of ... the cells that are involved in parenting."

Other talks covered topics ranging from how the brain produces fear to what makes one brain cell different from another. Stanford University's Surya Ganguli, PhD, focused on how animals navigate their environments, which he investigates using mathematical models that borrow concepts from physics. Rockefeller University's Vanessa Ruta, PhD, is fascinated by why flies mate only with members of their own species; her research

COLUMBIA | Zuckerman Institute

MORTIMER B. ZUCKERMAN MIND BRAIN BEHAVIOR INSTITUTE

indicates that this behavior can be explained by differences in how different species' brains respond to chemical signals.

Some of the participants study the human brain, like Christopher Walsh, MD, PhD, of Boston Children's Hospital. His research suggests that the brain accumulates mutations as it grows (and grows older), and he wants to better understand the role those mutations might play epilepsy, autism and mortality itself.

Other presenters use insects to uncover basic principles that govern how brains work. Rockefeller University's Leslie Vosshall, PhD, studies the senses by investigating how what she calls "the most dangerous animal in the world," the mosquito, detects its victims and tastes our blood when biting us.

For many of the participants, the symposium had the feel of a family reunion, complete with old photos and nostalgic stories. Four speakers, including Dr. Dulac, cut their scientific teeth in Dr. Axel's lab. Neuroscientist and Stanford president Marc Tessier-Lavigne, PhD, an expert on the branchlike structures formed by brain cells, did his postdoctoral research with a founding Zuckerman codirector, the late Thomas M. Jessell, PhD, and principal investigator Jane Dodd, PhD.

UCSF neurosurgeon Edward Chang, MD, PhD, challenged his first postdoc — Nima Mesgarani, PhD, now a principal investigator at the Zuckerman Institute — to a ping-pong match while he was in town. Zuckerman Institute principal investigator Andrés Bendesky, MD, PhD, earned his doctorate in the lab of speaker Cori Bargmann, PhD, of Rockefeller University. Stanford's Dr. Ganguli received postdoctoral training at Columbia's Center for Theoretical Neuroscience. And Kelsey Martin, MD, PhD, dean of the David Geffen School of Medicine at UCLA, studied how memories form as a postdoc in the lab of Nobel laureate and Zuckerman Institute codirector Eric Kandel, MD.

"Columbia meant a lot to me," said Dr. Martin. "It definitely shaped my brain."

Dr. Bargmann celebrated the collective brainpower on display. "I would like to congratulate Columbia for the impact that its trainees have had," she said.

After a talk about how brain cells form circuits, Rui Costa, DVM, PhD, led a panel with Symposium speakers about supporting scientific communities in ways that promote discovery.

COLUMBIA | Zuckerman Institute

MORTIMER B. ZUCKERMAN MIND BRAIN BEHAVIOR INSTITUTE

“We are doing science by focusing on the scientist ... at every level, from students and postdocs to more established scientists,” said Dr. Costa, the Zuckerman Institute’s director and chief executive officer.

During the panel, four of the Symposium speakers who also lead organizations weighed in on issues such as how to support women and members of minority groups in the lab.

“Fostering diversity is not just numerical,” said Dr. Tessier-Lavigne. “It goes hand in glove with creating an inclusive environment to new recruits.”

In addition to talks by senior scientists, the event featured the work of younger researchers on display in the Jerome L. Greene Science Center, home to Columbia’s Zuckerman Institute. Sipping wine and munching vegetables, graduate students and postdoctoral fellows presented research posters on topics ranging from how cuttlefish camouflage themselves to what new kinds of microscopes can show us about the brain.

Taking a break from the science, the attendees also sat down to listen to some of the Institute’s staff and young researchers at an evening storytelling event organized by The Story Collider. There were tears and laughs as the next generation of neuroscientists told stories about how they got their start in science.

Closing the symposium, Dr. Kandel offered a message for that generation. “We’re living in an intellectually interesting time,” he said. “We’ve seen mind, brain and behavior come together as a united discipline ... and we have much to look forward to in the years ahead.”

###

Columbia University’s [Mortimer B. Zuckerman Mind Brain Behavior Institute](https://zuckermaninstitute.columbia.edu) brings together a group of world-class scientists and scholars to pursue the most urgent and exciting challenge of our time: understanding the brain and mind. A deeper understanding of the brain promises to transform human health and society. From effective treatments for disorders like Alzheimer’s, Parkinson’s, depression and autism to advances in fields as fundamental as computer science, economics, law, the arts and social policy, the potential for humanity is staggering. To learn more, visit: zuckermaninstitute.columbia.edu.