

Larry J. Young (1967–2024)

By Zoe R. Donaldson, Elizabeth A. D. Hammock & Miranda M. Lim

 Check for updates

Larry J. Young (1967–2024) passed away in Tsukuba, Japan in March 2024 in the days leading up to the 2024 Society for Social Neuroscience Meeting. Larry was a key founding member of the Society for Social Neuroscience, who ushered the field of social neuroscience into the mainstream. Recognized as one of the world's leading authorities on the brain mechanisms underlying social relationships and bonding, he was a thought leader in translating those basic mechanisms into novel treatments for brain disorders with compromised social function, including autism spectrum disorders.

Larry Young grew up on a small family farm in rural Georgia, where he spent his days with a pet possum (who rode on his head), catching catfish, and drag racing with his brother, Terry, and his cousin, Jerry. These early experiences engendered a love of animal biology that led to a Bachelor's degree in biochemistry from the University of Georgia (1989) and a PhD in neuroendocrinology from the University of Texas at Austin (1994), where he studied parthenogenetic lizards (*Anolis carolinensis*) in the lab of David Crews. He returned to Georgia for a brief postdoctoral fellowship at Emory University School of Medicine with Thomas Insel and joined the faculty in 1996. The late 1990s saw him play an instrumental role in the founding of the Center for Behavioral Neuroscience, an NSF-funded center, through which he mentored dozens of trainees from diverse backgrounds. He later became the head of the Division of Behavioral Neuroscience and Psychiatric Disorders as the William P. Timmie Professor of Psychiatry in 2007. In 2016, he also established the Center for Social Neural Networks in Tsukuba, Japan.

Modern comparative social neuroscience exists because of Larry's contributions. He advocated for a simple idea: we need to use the right animal model for the question. Throughout his career, he leveraged the power of comparative biology to answer fundamental questions about social neuroscience. He is best known for his work with voles – small-eared rodents that have evolved many different social traits. By comparing monogamous prairie voles (*Microtus ochrogaster*) with their promiscuous cousins, meadow voles (*M. pennsylvanicus*), Larry revealed how diversity in the genes that encode social



neuropeptides and their receptors contributes to species and individual differences in behavior. He showed that complex behaviors were associated with specific expression patterns of oxytocin and vasopressin receptors in the brain¹, a finding he substantiated by showing that manipulating the expression of a single gene (*Avpr1a*) in a single brain region could transform the social behavior of typically solitary meadow voles². *Discover* magazine hailed the latter as one of the top 100 discoveries of 2004. He went on to show that variation in a repetitive DNA element in a non-coding regulatory region of *Avpr1a* contributed to diversity in brain expression patterns and social behavior³, providing an elegant mechanism by which natural selection could shape such a complex behavior. This idea was revolutionary at a time when most explanations for species-typical behavior focused on protein structure.

Larry's more recent work focused on understanding the role of oxytocin in the regulation of prosocial behavior. He proposed the potential for oxytocin in treating autism⁴, and he developed novel drugs to enhance oxytocin function. Moving into ever more complex social phenotypes, he showed that oxytocin is critical for empathy-based consoling behavior in voles⁵. Larry also promoted the use of the prairie vole model to better understand the neurobiology of disrupted social bonds, the importance of which feels especially salient in light of his untimely loss.

Larry was a recipient of the Frank A. Beach Award from the Society for Behavioral Neuroendocrinology, received the Golden Brain Award from the Minerva Foundation, was elected as Fellow of the American Association for the Advancement of Science (AAAS), was awarded the Jean-Marie Delwart Foundation International Award by the Académie Royale des Sciences de Belgique (Royal Academy of Sciences of Belgium), and received the prestigious Daniel H. Efron Award from the American College of Neuropsychopharmacology (ACNP). As he moved further into his illustrious career, Larry found new passion in outreach and dissemination of his scientific ideas, which had broad and lasting impact upon public policy. He became a strong advocate for wide communication of science. This led to numerous publications in popular science news outlets and the publication of a co-authored book, *The Chemistry Between Us: Love, Sex, and the Science of Attraction*. He shared his science with Buddhist monks, including the Dalai Lama, through the Emory–Tibet Science Initiative to better understand brain health through connections with the natural world. In the past 10 years, Larry traveled extensively to Africa and forged relationships with community leaders in Uganda and Kenya to communicate the science behind marital bonding and biparental nurturing of children, and to advocate strongly against the practice of female genital mutilation in the hope of empowering women and their social bonds.

The loss of Larry is particularly stark for those of us who were fortunate enough to interact with him in any capacity, but especially for Anne Murphy, his partner in life and in science, and their five adult children. He was a tireless supporter and advocate, one we all believed had years of scientific contributions and sage advice, and many new generations of mentees, ahead of him. He imparted to his trainees the gift of moving between deep discussion of complex scientific ideas and compelling summaries appropriate for a broad audience. The word 'impossible' had no place in his lab. From making transgenic voles to the light-powered remote control of pair bonding, all promising ideas were gently coaxed and given room to grow, often brought to fruition by following the advice of the magnet stuck to one of the lab refrigerators, which simply said "Never, ever, ever, ever, ever give up." One of

Obituary

the most important lessons in his lab was that groundbreaking science should be fun. His conversations inspired curiosity, scientific humility, and humor – always with a twinkle in his eye. Larry left our world too soon, but his legacy, the scientific field that he built, nurtured, and grew into a self-sustaining enterprise, and the community that he leaves behind will never forget his groundbreaking ideas and generosity.

Zoe R. Donaldson ¹ ,
Elizabeth A. D. Hammock ² &
Miranda M. Lim ^{3,4}

¹University of Colorado Boulder, Boulder, CO, USA. ²Florida State University, Tallahassee, FL, USA. ³Oregon Health &

Science University, Portland, OR, USA.

⁴VA Portland Health Care System, Portland, OR, USA.

 e-mail: zoe.donaldson@colorado.edu

Published online: 17 April 2024

References

1. Young, L. J., Nilsen, R., Waymire, K. G., MacGregor, G. R. & Insel, T. R. *Nature* **400**, 766–768 (1999).
2. Lim, M. M. et al. *Nature* **429**, 754–757 (2004).
3. Hammock, E. A. D. & Young, L. J. *Science* **308**, 1630–1634 (2005).
4. Young, L. J. & Barrett, C. E. *Science* **347**, 825–826 (2015).
5. Burkett, J. P. et al. *Science* **351**, 375–378 (2016).