Hello honey bees

Honey bees (*Apis mellifera*) have been kept alongside humans for centuries. The bumbling insects have an important agricultural role as crop pollinators and have long been domesticated for their honey and wax. They've been brought into the lab too, as model organisms to study areas like social behavior, aging, and developmental plasticity. Bees have an intriguing microbiome as well.

The honey bee genome has been sequenced and its microbial communities are being cultured and defined. In a new review, Hao Zheng, Nancy Moran, and their colleagues at the University of Texas at Austin break down the bee and its bacteria and describe its use and value as a model for gut microbiota research.

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Imaging with a light within

Fluorescent proteins are mainstays for *in vivo* imaging of structures and cellular processes in lab animals. But they aren't the only option for researchers who want to look at what's going on inside their subjects. Bioluminescence, the glowing phenomenon observed naturally in animals like fireflies and jellyfish, can be used to give less luminous animals like mice, rats, and even marmosets an inner light too.

In vivo bioluminescence imaging (BLI) is a non-invasive approach that can function deeper in tissues than using fluorescent proteins and an external light source. It has its limitations, but the search is on to find better natural sources of the needed enzymes and substrates and to engineer optimized pairs for use *in vivo*. Read more about *in vivo* BLI in this month's Technology Feature.

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