TOOLS IN BRIEF

SENSORS AND PROBES

Watching auxin make its move

Auxins are hormones with many developmental and physiological roles in plants. Their precise distribution is governed by a combination of synthesis, polarized transport, chemical inactivation and degradation. Reporters provide a spatial readout of signaling but cannot visualize the hormones themselves. Hayashi *et al*. report two fluorescent auxin analogs, NBD-NAA (7-nitro-2,1,3-benzoxadiazole conjugated to naphthalene-1-acetic acid) and NBD-IAA (NBD conjugated to indole acetic acid) to specifically tease out the effect of transport on auxin distribution in *Arabidopsis thaliana*. They show that the analogs do not participate in signaling for the most part, thus avoiding strong feedback regulation, but appear to be actively transported as expected for the auxins IAA and NAA. Results from these analogs also suggest the presence of an intracellular auxin gradient.

Hayashi, K.-i. *et al*. *Proc. Natl. Acad. Sci. USA* **111**, 11557–11562 (2014).

NEUROSCIENCE

Pinpointing postsynaptic partners

Though anterograde and retrograde tracers are useful for characterizing functional synaptic connections, such tracers are not available for the *Drosophila* nervous system. Jagadish *et al*. describe an alternative strategy to identify neurons postsynaptic to *Drosophila* photoreceptors. The histamine release from photoreceptors results in the activation in postsynaptic cells of an ectopically expressed histamine receptor, which is fused to the transcriptional activator Gal4. This activation in turn leads to the recruitment of another ectopically expressed protein, a fusion between arrestin and a tobacco etch virus protease. Upon interaction of the histamine receptor and the arrestin fusion proteins, Gal4 is released and can induce the transcription of a marker such as GFP. Thus, this strategy fluorescently labels neurons downstream of the histaminergic photoreceptors. The system may be adapted to other neurotransmitters.

Jagadish, S. *et al*. *Neuron* **83**, 630–644 (2014).

MICROBIOLOGY

Another hit to the gut microbiome

Sequencing surveys have provided a window into the microbial populations that call our bowels home. Researchers with the European Metagenomics of the Human Intestinal Tract (MetaHit) project now consolidate and expand the catalog of sequences available from the gut. Li *et al*. provide shotgun sequence from 249 new samples and combine these with existing data from over 1,000 European and US samples from MetaHit and the Human Microbiome Project as well as a large diabetes study from China, plus more than 500 sequenced gut bacterial genomes, generating an integrated gene catalog with nearly 1 million nonredundant gene sequences. The authors were able to identify microbial abundance patterns specific to different countries. The unprecedented size of this resource will allow better functional studies of gut microbes.

Li, J. *et al*. *Nat. Biotechnol*. **32**, 834–841 (2014).

LAB-ON-A-CHIP

Myelination in arrays

Fast axonal signaling is possible because of the insulating function of myelin, which is formed by oligodendrocyte membranes that wrap around axons. Mei *et al*. have developed a micropillar array that can be used to visualize myelination in high throughput. The conical pillars in the array serve as substrates for oligodendrocytes and thus allow the analysis of myelination even in the absence of neurons. Because of the conical shape of the pillars, concentric membrane layers can be visualized along the length of the pillars in a single image. These arrays are useful tools to study oligodendrocyte differentiation and myelin formation, and they can also be used to screen for compounds that affect the process of myelination.

Mei, F. *et al*. *Nat. Med*. **20**, 954–960 (2014).