› RESEARCH IN BRIEF

Mice feel—and smell—each other's pain

Avoiding—or at least minimizing—pain is a venerated objective in animal research, from both an ethical as well as a design perspective. Pain can disrupt an animal's affective state and subsequent responses to treatments; identifying sources of pain and its effects are increasingly appreciated as necessary to avoid or account for confounding factors. Pain, however, might not be a solo experience. Among social species, growing evidence suggests that social transfer can alter the responses of commiserating conspecifics, which may be intended to serve as controls. The dynamics of bystander pain are explored in a new study published in *Science Advances* (**2**, e1600855; 2016).

The researchers experimentally induced symptoms of inflammation, opiate withdrawal, and alcohol withdrawal in a group of mice and then tested the mechanical, thermal, and chemical pain sensitivity of bystanders housed in the same room. They observed hyperalgesia—increased pain sensitivity—in the bystanders that was similar to that observed in the symptomatic mice. The pattern held when the bystander mice were not actually present alongside those being stressed but were instead exposed to their bedding after the fact, indicating an olfactory origin of the shared hyperalgesia. The results underscore the need for careful consideration when housing and testing both experimental and control animals. *EPN*

A multi-marker method for GWA studies

Genome-wide association (GWA) studies typically rely on single genetic markers, making them prone to confounders like genetic backgrounds and population structure. Statistical methods can correct for these, but at a severe cost to sensitivity. Klasen *et al.* have developed a new multi-marker GWA method, known as Quantitative Trait Cluster Association Test (QTCAT), that eliminates the need for statistical corrections (*Nat. Comm.* **7**, 13299; 2016). Using previously published GWA data from *Arabidopsis*, mice and humans, they showed that QTACT identified all previously reported associations as well as new associations in all cases tested. To validate the most significant novel association (in *Arabidopsis*), the team created a loss of function mutant with the predicted phenotype, demonstrating the potential for QTCAT to discover novel gene candidates for specific traits. *DMG*

Fast and flexible 3D *in vivo* neural imaging

Cortical circuits are composed of spatial distributed and sparsely activated cells that process information at the millisecond time-scale. Studying these circuits requires methods that can rapidly measure activity dispersed throughout a 3D volume. Improving on their previous designs, Nadella *et al.* describe a new acousto-optic lens (AOL) imaging system that enables high-speed volumetric imaging and new modes of random-access sampling to monitor sparse and distributed neural activity (*Nat. Methods* **13**, 1001–1004; 2016). The key development of their system—dubbed 3D-RAPS—is the ability for rapid line-scans and random-access pointing across an entire imaging volume, overcoming a major hurdle of conventional AOLs. They tested their new system with *in vivo* calcium imaging of GCaMP6f labeled cells in cerebellum and visual cortex in awake-behaving head-restrained mice, demonstrating near-simultaneous monitoring of neurons, dendrites and axons distributed across superficial and deep layers. *DMG*

Lending a helping wing

Altruism has been considered a uniquely human trait. Attempts to unveil its evolutionary origins have proved inconsistent from species to species, but a pattern seems to be emerging with the cooperative breeding hypothesis. The hypothesis posits that prosocial behavior—helping another without benefiting oneself—may be linked to alloparental care. Prosocial behavior has been documented in marmosets and other New World monkeys, primates besides humans that will cooperatively care for another's offspring, but few studies have considered whether non-primate species will lend a helping hand. Perhaps we should be looking for a helping wing?

Researchers from the University of Vienna are investigating prosocial behavior in the azure-winged magpie, a corvid that lives in cooperative breeding colonies (*Biol. Lett.* **12**, 20160649; 2016). For the study, the team built a seesaw apparatus in the birds' homecages. Perching on one arm of the seesaw raised another that offered mealworms to cage mates but not the original bird. No bother—the magpies consistently perched to allow others to grab a snack, but ignored the seesaw when food was absent or blocked from entering the cage. These azure-winged magpies are the first documented example of prosociality in birds, offering support to the cooperative breeding hypothesis and suggesting new taxa for consideration in future studies. *EPN*

Aging eyes in bonobos

Around forty, many people may start developing presbyopia. It's a normal part of aging—the lens of the eye begins to lose its youthful flexibility and it becomes difficult for it to focus on near objects. The resulting blurry vision can make up-close work like reading a challenge.

While our nearest relatives may never be observed reading books outstretched to arms' length, the signs of presbyopia may be there in one of their natural behaviors: grooming. Many primates spend large portions of their time carefully scouring their mates for dirt, debris, or tasty little bugs. Aging, however, seems to complicate things. New research has quantified changes in grooming distance with age in a wild group of bonobos living in the Democratic Republic of the Congo (*Curr. Biol.* **26**, R1131-R1132; 2016).

Young bonobos were observed grooming each other closely, while older ones participated at much greater distances. The values calculated for nearest focal distance and diopter for the bonobos of different ages fell within the ranges observed in humans and followed similar patterns.

Though wild primates may not always live long enough for failing eyesight to become problematic, this variable may merit consideration for welfare and study design using primates housed in captive research settings. *EPN*

LITE-1 integrates sight and taste in *C. elegans*

Animals must respond to and integrate various external sensory cues, such as light and chemicals, to mediate appropriate responses. Using *C. elegans* as their model, Gong *et al.* show that LITE-1, a gustatory receptor homolog, also acts as a highly efficient photoreceptor sensitive to UV light (*Cell* **167**, 1252–1263; 2016). Using ectopic expression in muscle cells combined with calcium imaging, the group showed that LITE-1 can confer photosensitivity. The group also explored unique features of LITE-1, including its ability to directly absorb photons without an associated chromophore. Denaturing LITE-1 with urea completely eliminated photosensitivity, demonstrating that LITE-1's ability to absorb photons is derived directly from conformational changes in its protein structure. Using a forward genetic screen, the team dug deeper and discovered two tryptophan residues (A332V and S226F) critical for LITE-1's intrinsic photoabsorption. *DMG*