NAVIGATION

Freed up to fly

eLife 2018; 7:e29053

Recording electrical signals via implanted electrodes helps researchers understand what's going on in the brain. Rodents have been set free with their implants, allowing brain activity to be recorded in unrestrained subjects. Bats are now being set loose too.

Cynthia Moss and colleagues at Johns Hopkins were interested in how the midbrain superior colliculus (SC) contributes to spatial orientation. They've looked at this before in bats, but not while the animals were freely flying. In their latest paper, they combine neural activity data from wireless electrodes implanted into the SC with audiovisual recordings and a novel echo model to tease apart how big brown bats determined their position while navigating an obstacle-filled space. Though they only observed two bats, the researchers saw dynamic changes in neuron activity as the bats echolocated their way through the room. *EPN*

https://doi.org/10.1038/s41684-018-0079-7

ANIMAL DISEASE MODELS

An NHP for CCHF research

Nat Microbiol **3**, 556–562 (2018).

Crimean-Congo hemorrhagic fever (CCHF) is a neglected but widespread viral disease that's transmitted to humans via ticks. There's no vaccine available, nor a clinically relevant animal model. Immunocompromised mice can model severe forms of the disease, but their use is limited by their immune deficiencies. But recently, a new immunocompetent model has been discovered that could help future research.

A pilot study led by researchers at the NIH National Institute of Allergy and Infectious Diseases tested CCHF infection in three different nonhuman primate species. Cynomologous macaques seemed most susceptible; follow-up testing with additional macaques revealed symptoms and signs of disease progression that paralleled those in human patients. *EPN*

https://doi.org/10.1038/s41684-018-0080-1

DEVELOPMENT

Placenta problems

Nature **555**, 463–468 (2018).

Creating knock-out mouse lines doesn't always go as planned—previous phenotyping efforts have suggested that in as many as 25–30% of cases, knock-out offspring just won't be viable. Researchers studying why have tended to focus on deleterious effects to the growing embryo, but they haven't paid as much attention to another important consideration for proper development: the placenta.

A recent systematic screen of 103 different knock-out mice pins over half of the problems that arise during gestation on mutations that affect the placenta. As gestation continues, those defects in the placenta appear to be linked to abnormalities in the embryo, especially in the brain, heart, and vasculature. Further testing implicated genes related to the trophoblast, the outer layer of the placenta that provides nutrition to the embryo. *EPN*

https://doi.org/10.1038/s41684-018-0081-0

IMMUNOLOGY

These wild mice

PLoS Biol. **16**, e2003538 (2018).

Mus musculus domesticus is a staple in biomedical research; the lab mouse's wild counterpart is the same species. Whereas in the lab mice are often inbred and housed in tightly controlled conditions, mice living out their days in the wild are genetically diverse and subject to the vagaries of their natural environment. Not unlike people. To improve translational relevance when studying the immune system, recent papers have explored what happens when lab mice are introduced to 'dirty' conspecifics, and when they themselves are taken out to the field. But under it all, they're still the same genetically similar animals. A new paper considers the immunobiology of wild mice, as they are in the field.

The researchers sampled wild mouse populations outside of Bristol, as well as from the tube in London and a small island near Wales, and characterized their innate and adaptive immune systems. The results are available in *PLoS Biology*. *EPN*

https://doi.org/10.1038/s41684-018-0082-z

PERIPHERAL NEUROPATHIES

Novel treatment for neuropathy

Nat Commun **9**, 1640 (2018).

Often associated with neuropathy, mechanical allodynia is an extreme sensitivity to normal sensations, such as