CANCER

PDAC organoids *in vivo*

Miyabayashi, K. et al. *Cancer Discov* (2020).
https://doi.org/10.1158/2159-8290.CD-20-0133

Human cell-derived organoids can be a step up from cell cultures, but they still lack physiological context. Xenotransplanting the 3D structures into immunodeficient mice can add that context, but how and where the transplantation occurs can impact translational relevance.

Researchers from Cold Spring Harbor Laboratory previously established an orthotopically grafted organoid (OGO) model of pancreatic ductal adenocarcinoma (PDAC), a cancer with an extremely poor prognosis. The OGO mouse models, however, developed tumors in different cells and more quickly than PDAC patients. To better recapitulate PDAC, including its two recently characterized genetic subtypes, the lab developed a method to transplant patient-derived organoids directly into the relevant location in mice: the pancreatic duct. The resulting phenotypes in the intraductally grafted organoid (IGO) mouse models more accurately modeled both subtypes of PDAC. *EPN*

https://doi.org/10.1038/s41684-020-0628-8

MICE

About weaning time

Bailoo, J.D. et al. *Sci Rep* **10**, 11684 (2020)

When to wean? The timing can vary from facility to facility, but evidence suggests that separating mouse pups too early, or too late, from their mothers can impact a number of different behavioral, physiological, and neurological traits as those mice age. Whether the weaned mice are then singly or group housed might further influence phenotypes. Such variation is a suspected culprit in the poor reproducibility of preclinical studies.

Jeremy Bailoo and colleagues recently took a closer look at the interactions between weaning age and housing, studying cohorts of singly- or group-housed SWISS mice that were weaned at one of five time points between 14 and 30 days. The effects on different behavioral and physiological measures were minimal, contradicting prior findings and suggesting that there's still more work to do to explain sources of experimental variation. *EPN*

https://doi.org/10.1038/s41684-020-0630-1

NEUROSCIENCE

Synaptomes for the ages

Cizeron, M. et al *Science* **369**, 270—275 (2020)

Synapses are structures in the nervous system that enable communication between neurons. Healthy synapses contribute to learning and memory, while those that go awry can lead to a number of neurological disorders, many of which tend to arise at characteristic ages, such as autism in toddlers, schizophrenia in young adults, and dementia in elderly individuals.

To explore how the synaptome changes with age, researchers at the University of Edinburgh recently published the Mouse Lifespan Synaptome Atlas. Looking at 10 age cohorts, from day-old newborns to 18-month old aged animals, and using fluorescent markers to tag billions of excitatory synapses in different areas of the animals' brains, the team documented age-dependent changes in variables such as synapse number, composition, and morphology across the mouse lifespan. In the mice, these differences broadly correspond to childhood & adolescence, young adulthood, and old adulthood. *EPN*

https://doi.org/10.1038/s41684-020-0629-7

GENOMES

To the bat references

Jebb, D. et al. *Nature* **583**, 578—584 (2020)

The 1400+ species of bats make up about 20% of the mammalian species alive today. Among all those bats you'll find considerably diversity and a number of intriguing traits, such as the ability to fly and echolocate and, of relevance to human health, considerable longevity relative to their small size and resistance to viral infections that would (and do) lay us low.

The Bat1K project hopes to better understand how bats do what they do and are what they are through their genomes. The project recently released its first batch of chromosome-level reference genomes for six different bat species, which join 15 in the project's database that were sequenced previously by other groups. Genome-wide screens of the reference genomes revealed selection for and loss of a number of genes with potential roles in bat hearing and the bat immune system. *EPN*

https://doi.org/10.1038/s41684-020-0631-0

Alexandra Le Bras and Ellen P. Neff