CANCER GENOMICS

Tackling turtle tumors

Commun Biol **1**, 63, https://doi.org/10.1038/s42003-018-0059-x (2018).

All seven species of sea turtle can be afflicted by fibropapillomatosis, a herpesvirus that causes epithelial tumors that can be lethal if left to grow unchecked. From tissue sampled from green sea turtles recuperating at the Whitney Laboratory Sea Turtle Hospital in Florida, researchers recently completed the first transcriptomic analysis of fibropapillomatosis tumors to better understand the molecular drivers behind the disease.

It turns out that fibropapillomatosis shares some similarities with human malignancies. Many of the genes and signaling pathways identified in the turtles' tumors are also observed in human cancers, like basal cell carcinoma. So the team tried out a human cancer treatment on turtles with ocular tumors: recurrence was observed in just 18% of turtles that received the topical treatment after tumor removal, compared to over 60% in those that underwent surgery alone. *EPN*

https://doi.org/10.1038/s41684-018-0116-6

CONSERVATION GENOMICS

And the IMPC goes wild

Conserv Genet https://doi.org/10.1007/s10592-018-1072-9 (2018).

With its standardized phenotyping pipeline, the International Mouse Phenotyping Consortium (IMPC) wants to characterize every protein-coding murine gene. By identifying genetic sequences that are shared between the lab mouse and other species, researchers can gain a better idea of a given gene's role in animals that are more challenging to systematically study, like people. But people aren't the only possible beneficiaries of the consortium's efforts: knowledge from the mouse might just help wildlife too.

A recent pilot study, led by Violeta Muñoz-Fuentes at the European Bioinformatics Institute, linked mouse data from the IMPC to three subspecies of gorilla in an attempt to identify candidate genes that could impact viability in the great apes. The authors reason that such catalogues could help captive breeding programs arrange beneficial breeding pairs and avoid deleterious ones. *EPN*

https://doi.org/10.1038/s41684-018-0117-5

GENETIC ENGINEERING

Gold on the brain

Nat. Biomed. Eng. https://doi.org/10.1038/s41551-018-0252-8 (2018).

To get CRISPR-Cas9 where it needs to be to realize its gene-editing potential, most approaches uses viral vectors to deliver the tool, its machinery, and the corrected donor sequence to the right location. But viruses can trigger immune reactions, and viral vectors can lead to toxic overexpression of the molecular scissor. Last year, researchers at the University of California Berkeley created a non-viral delivery vehicle that employs gold nanoparticles to transport the necessary components and used it to improve the symptoms of mouse models of Duchene muscular dystrophy (*Nat. Biomed. Eng.* **1**, 889–901; 2017). A new paper takes the CRISPR-Gold approach to the sensitive and tricky-to-access mouse brain, demonstrating biocompatibility, editing potential in both neurons and glial cells, and efficacy in reducing repetitive behaviors in mice modeling fragile X syndrome. *EPN*

https://doi.org/10.1038/s41684-018-0118-4

ANIMAL BEHAVIOR

Electrical ethology

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Though less shocking than the electric eel, mormyrids are weakly electric fishes that survey their environment and communicate through electrical discharges from a specially evolved organ. Mormyrids will often sync up their electrical activity, but how and why was unclear, at least while limited to animal observations. To prompt the electrical echoes for further study, researchers created a robotic version that they could control. Real fish ignored the artificial animal if it remained silent but engaged with it when it emitted electrical discharges.

Regardless of how random the electrical stream, the fish would eventually start to echo the robot. Vocal imitation is considered a sign of cognitive ability—observing such a pattern could be sign of a similar, if simple, mechanism in a novel form. *EPN*

https://doi.org/10.1038/s41684-018-0119-3