

CANCER

Personalized flies

Bangi, E. et al *Sci. Adv.* **5**, eaav6528 (2019)

Personalized approaches to study drug responses in human tumors may soon have a new animal option for preclinical drug testing and screening: the fruit fly. Researchers at the Icahn School of Medicine at Mt. Sinai recently reported on patient-customized transgenic *Drosophila* that they used to screen drugs with the potential to treat treatment-resistant metastatic KRAS-mutant colorectal cancer.

The team genotyped a 53-year old male patient's colon tumor to determine its mutation profile. Nine mutations were then recreated with a GAL4/UAS vector in orthologous genes in the fly hindgut. The transgenic flies were dosed with different existing drugs to see which, if any, improved survival. The most promising combination—trametinib plus zoledronate—was then administered to that original patient, leading to stable improvements for 11 months. *EPN*

<https://doi.org/10.1038/s41684-019-0343-5>

NEUROSCIENCE

Faking memories

Vetere, G. et al. *Nat. Neurosci.* **22**, 933-940 (2019)

Memories are encoded in neural circuits and formed from experiences. Usually—new research suggests experience can be optional.

Mice will learn to associate an input, such as a smell, with an outcome—for example, a footshock. The next time they note that odor, they know to get out of the area. Artificially manipulating the synaptic pathways involved can then alter the resulting conditioned behavior. The researchers in the current study, attempting to reverse-engineer the memory formation process, found they could skip the whole experience element. Through optogenetic manipulation of olfactory neurons and those that mediate aversive behavior, they were able to impart 'artificial' memories in mice. These mice then responded to odor in the same way as odor-conditioned animals, despite never having actually smelled the aversive odor before. *EPN*

<https://doi.org/10.1038/s41684-019-0344-4>

OBESITY

Mediterranean diet better in macaques

Shively, C.A. et al. *Obesity* **27**, 777-784 (2019)

Studies based on human self-reporting suggest that plant- and lean protein-rich Mediterranean diets are better for one's health—or at least one's waistline—than sugary, saturated-fat heavy Western diets. A randomized, long-term controlled diet study in nonhuman primates reaches similar conclusions.

The researchers at Wake Forest University established baseline obesity and metabolic measures in socially housed, middle-aged female macaques after 7 months on typical monkey chow. They then divided those animals into two experimental groups: one was fed a Mediterranean-like diet; the other, a Western-like one. The animals were followed for 31 months, a span representing about 9% of a macaque's life. Though baseline measures were similar and the animals on each diet could eat as much as they wanted, the Mediterranean macaques ended the study with lower BMIs, less body and liver fat, and lower triglyceride levels than Western-fed counterparts. *EPN*

<https://doi.org/10.1038/s41684-019-0345-3>

DEVELOPMENT

Voles on oxytocin

Kenkel, W.M. et al. *Sci. Adv.* **5**, eaav2244 (2019)

Women going into labor naturally produce oxytocin, a hormone that promotes contractions as well as bonding after birth. Many also receive exogenous sources to induce or augment the labor process. What impact that extra oxytocin might have on the baby after the fact isn't entirely clear, so researchers recently looked to an animal to learn more: prairie voles, known for their close social relationships. Plasma levels of oxytocin rose in the vole fetus when the hormone was administered to the pregnant dam. The effects appeared to be long lasting, at least in males: over their lives, male voles who received extra oxytocin *in utero* were more social towards other adults as well pups, with potential epigenetic signatures of oxytocin exposure observed in the brain. *EPN*

<https://doi.org/10.1038/s41684-019-0346-2>

Alexandra Le Bras and Ellen P. Neff



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