

the gentle brushing of hair. In a new study, authors characterized the light-touch mechanoreceptors responsible, which express tyrosine receptor kinase B (TrkB). Interestingly, the researchers took a novel approach to alleviate pain in mice by conjugating the TrkB ligand, brain-derived neurotrophic factor, to a photo-sensitizing agent and then injecting animals with the molecule. Upon illumination with an IR laser, the nerve endings were photoablated, resulting in a reduction of response to what had been painful stimuli. CN

<https://doi.org/10.1038/s41684-018-0083-y>

IMMUNOLOGICAL MODELS

Urban(e) is not necessarily better

PNAS <https://doi.org/10.1073/pnas.1719785115> (2018).

City-living is associated with allergies in people, but disentangling all of the variables is difficult. Recently, dogs, as opposed to mice, were used as an alternative model for allergenic risk. Canines are likely better models than rodents because they share our environment as companion animals and also spontaneously develop allergies; however, they do not share all of the complexity associated with a human lifestyle. For dogs, living without other pets and in urban settings were risk factors for developing allergic conditions. These differences were also observable in the skin microbiota. This study emphasizes the need for people to make good lifestyle decisions regarding location and household size, not only for themselves, but also for their faithful friends. CN

<https://doi.org/10.1038/s41684-018-0084-x>

NEUROLOGICAL MODELS

New neurological model

Nat Biotechnol **36**, 432-441 (2018).

On the constant hunt for a better model of neurological disorders, biologists have

taken a fresh approach. Typically, either human cell-culture or an in vivo rodent model is used to study diseases of interest. By developing a hybrid system that utilizes human pluripotent stem cells (hPSC) in mouse hosts, investigators were seeking the advantages -relevance and complexity- of both systems. For this report, authors first converted hPSC to a cerebral organoid, a 3D cell culture, before implanting it in a mouse brain. Researchers saw development and integration of the organoid with native tissues. Grafts engaged in neurogenesis and produced electrically active cells that interacted with mouse neurons; additionally, glial cell development was observed. Importantly, grafts showed healthy vascularization by host tissues, one of the major shortcomings of working with just cell culture systems. CN

<https://doi.org/10.1038/s41684-018-0085-9>

AGING

Extending lifespan without hunger

Elife <https://doi.org/10.1101/250100> (2018).

Caloric restriction is one of the few known ways by which to extend life in rodents. This effect is mediated in part by the mechanistic target of rapamycin complex 1 (mTORC1) pathway. A component of this cascade is the transcription factor C/EBPβ-LIP, one of three proteoforms translated from the cognate mRNA. As mice age, this protein increases and is associated with many of the physiological changes of aging. Using genetic methods, investigators demonstrated that decreasing levels of this protein extended lifespan in female mice; sorry guys. Several age-related phenotypes, including cancer frequency and muscle loss, were also improved. All without having to say, 'No more pie, thank you'. CN

<https://doi.org/10.1038/s41684-018-0086-8>

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