NEURODEVELOPMENT
Early life stress in depression susceptibility
The linkage between stress early in life and behavioral depression in adulthood is complex. Peña et al. were able to define a time period in early development when mice are especially susceptible to stress. Mice subjected to stress during this time period were less resilient to stress in adulthood. Genes regulated by the transcription factor orthodenticle homeobox 2 (OTX2) primed the response toward depression in adulthood. Although early stress could establish the groundwork for later depression, that priming could be undone by intervention at the right moment. —PJH

EDUCATION
Engaging local stakeholders
Ecological knowledge in itself often fails to incite environmental behavior change. Thus, local stakeholders at the frontlines of ecological challenges are increasingly being involved in adaptive ecosystem management choices. Fujitani et al. performed a multiyear study on 181 members of a German angling club involved in adaptive management of fisheries. These members were more likely to retain knowledge of ecological topics and express pro-environmental behavior intentions compared with those receiving only a standard lecture. Engaging stakeholders with ecosystem management will be important for local decision-making related to sustainability. —NK

STEM CELLS
Immune control of hair growth
Hair follicles in mammalian skin undergo cycles of quiescence and regeneration. Hair follicle stem cells play a role in the regeneration phase. Ali et al. have found that regulatory T cells (Tregs), immune cells known to suppress inflammation, colocalize with stem cells in hair follicles. In a mouse model of hair regeneration, depletion of Tregs reduced hair growth. Analysis of gene expression revealed that Tregs promote the recruitment to the lysosomal surface. This mechanism is particularly important in cancer cells. —SMH

IN OTHER JOURNALS
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ANIMAL COGNITION

I know what you know

Theory of mind involves recognizing that others have a distinct perspective. Such an ability is difficult to identify in species that cannot tell you about their thoughts, but research over the past decade or so has shown that it is not unique to humans, being present in at least apes and corvids. Dogs, which coevolved with humans, are excellent at reading our cues but have not been shown experimentally to “read” our minds. Catala et al. tested pet dogs for their ability to recognize when a particular observer has important knowledge through a classic knower-guesser test. They found that dogs followed the gaze of an observer whom they saw witness the hiding of a reward, rather than one who was guessing about its location. Thus, the dogs recognized that the observer knew something they did not, and that it was of value to pay attention to the information conveyed. This recognition of other knowledge is a first step toward a full theory of mind, an ability that would be adaptive across the animal kingdom. —SNV


PSYCHOLOGY

Thinking about what others believe is hard work

In a remarkable set of studies, Powell and Carey marry two previously unlinked lines of research. Executive function refers to the ability to make decisions, such as being able to switch from pressing the keyboard down (up) arrow when seeing a down (up) arrow on the computer screen to pressing the up (down) arrow when seeing a down (up) arrow. A person’s ability to carry out such a task diminishes after being forced to exercise self-control (for example, for a child, waiting to open a box of toys). Theory of mind involves predicting another’s behavior on the basis of understanding that person’s beliefs. After suffering through the delayed-gratification exercise, 4- and 5-year-old children displayed impaired theory-of-mind capabilities. —GJC


DEVELOPMENT

TET function in development

In development, cell fate commitment enables the generation of the body’s specialized cells. When one fate is targeted, other paths must be prevented. DNA methylation of CpG dinucleotides is key for such molecular repression. However, the erasure of DNA methylation is also critical in development and occurs at specific times, such as during embryonic postimplantation. The ten-eleven translocation (TET) genes perform this role. Khoueiry et al. now identify a methylation-independent role for TET1 to repress genes involved in the differentiation of epiblast and extraembryonic ectoderm through regulation of the transcriptional repressor JMJD8. Embryonic defects result if TET1 is removed. Hence, the well-known demethylase has critical functions in normal development through both catalytic and noncatalytic activities. —BAP

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MOLECULAR DEVICES

Bipolar light-emitting junctions

Molecular junctions formed from Ru(bpy)$_3$ oligomers (bpy, 2,2’-bipyridine) transition with increasing thickness from transporting electrons to emitting light. Tefashe et al. used electrochemical deposition to grow Ru(bpy)$_3$ oligomers along with PF$_6^-$ counterions on conducting carbon, which was then capped with conducting carbon to form a junction. Films thicker than 4 nm emitted light at wavelengths between 600 and 900 nm for biases above 2.7 V. Unlike previous devices based on Ru(bpy)$_3$, the emission is bipolar (occurs for both positive and negative bias) and has a rapid onset (5 ms) and long persistence (10 hours). The authors argue that both hole and electron injection occur through a resonant process involving a metal-to-ligand charge transfer. —PDS

TET function in development
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