The giant mole-rat, *Fukomys mechowii*, is a strictly subterranean rodent endemic to sub-Saharan Africa that constructs and inhabits extensive burrow systems isolated from the aboveground. It uses its impressive incisors for digging. Sensory systems of this congenitally microphthalmic animal are uniquely adapted to a dark underground ecotope. Oliveriusová et al. (pp. 3649–3654) show that two mole-rat species, the social giant mole-rat and the solitary silvery mole-rat, *Helipobius argentoeicneres*, use a light-independent magnetic compass for near-space orientation. Surprisingly, a comparative analysis suggests that the directional preference might be learned in these subterranean rodents. Photo credit: Ondřej Kott.

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**Methods & Techniques**
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**Research Articles**
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Fruson, L., Dalesman, S. and Lukowiaik, K. A flavonol present in cocoa [(-)epicatechin] enhances snail memory. 3566-3576

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Oliveriusová, L., Němec, P., Králová, Z. and Sedláček, F. Magnetic compass orientation in two strictly subterranean rodents: learned or species-specific innate directional preference? 3649-3654

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Peltonen, J., Cronin, N. J., Stenroth, L., Finnin, T. and Avela, J. Achilles tendon stiffness is unchanged one hour after a marathon. 3665-3671


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