RESEARCH HIGHLIGHTS

IN BRIEF

NEUROGENESIS

The marginal zone/layer I as a novel niche for neurogenesis and gliogenesis in developing cerebral cortex

Costa, M. R., Kessaris, N., Richardson, W. D., Götz, M. & Hedin-Pereira, C. *J. Neurosci.* **17**, 11376–11388 (2007)

The ventricular and subventricular zones in the telencephalon are thought to be the main sources of progenitor cells. However, Costa *et al.* have identified a novel proliferative zone in the outermost layer of the murine embryonic cortex, the marginal zone. Proliferation of progenitors in this area was observed from the onset of neurogenesis *in vivo*. The authors showed that in primary cultures these cells were molecularly distinct from those in the ventricular and subventricular zones and were able to generate both neurons and glia, thus contributing to the heterogeneity of cortical cell types.

COGNITIVE NEUROSCIENCE

Semantic associations between signs and numerical categories in the prefrontal cortex

Diester, I. & Nieder, A. *PLoS Biol.* 5, e294 (2007)

In this study, the authors trained monkeys to associate particular quantities of dots with particular shapes. They then showed that single neurons in the monkey prefrontal cortex (PFC) fired in response to both specific numbers of dots and to their associated shapes, whereas in the intraparietal sulcus (IPS) most neurons responded to either number of dots or shape. These data indicate that the PFC is used for semantic associations between shape and number, and that this system in monkeys might be a phylogenetic precursor of the network used for symbolic number processing in humans, which includes the PFC and the IPS.

PAIN

Opioid-mediated placebo responses boost pain endurance and physical performance: is it doping in sport competitions?

Benedetti, F., Pollo, A. & Colloca, L. J. Neurosci. 27, 11934–11939 (2007)

After two weekly training sessions in which a morphine injection increased tolerance for ischaemic pain in healthy males, a placebo injection a week later also increased pain tolerance. The placebo effect was abolished by simultaneous naloxone administration, indicating that the placebo had induced the release of endogenous opioids. The authors suggest that if athletes were preconditioned with morphine, a placebo given on the day of competition could be used to improve performance.

NEUROTROPHINS

Roles for the pro-neurotrophin receptor sortilin in neuronal development, aging and brain injury

Jansen, P. et al. Nature Neurosci. 11, 1449-1457 (2007)

Pro-neurotrophins are known to induce apoptosis through a sortilin–p75^{NTR}-dependent cell-death pathway. Here, the authors examined the effects of sortilin on neuronal viability in sortilin-knockout mice. Although apoptosis in the developing retina was reduced, the developmentally regulated apoptosis of sympathetic neurons was not affected. Interestingly, these cells were protected from age-dependent degeneration and cell death after injury, highlighting a pro-apoptotic function of sortilin beyond the development of the nervous system.

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