Volume 71 No. 4 April 2012

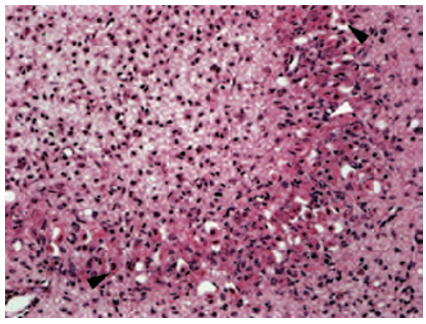
doi:10.1038/pr.2012.10

Inhaled steroids and pulmonary surfactant

Inhaled and intratracheally administered glucocorticoids enable clinicians to avoid systemic steroid side effects. However, glucocorticoids delivered via the lungs should not interfere with surface activity of the pulmonary surfactant lining layer. Investigators found differential effects of cholesterol and budesonide on the biophysical properties of a cholesterol-free clinical surfactant preparation. The results suggest that cholesterol-free surfactant preparations may have advantages over cholesterol-containing preparations as a carrier of budesonide, because a larger amount of the drug may be delivered to the lungs without significantly compromising the surface activity of pulmonary surfactant. **See page 316**

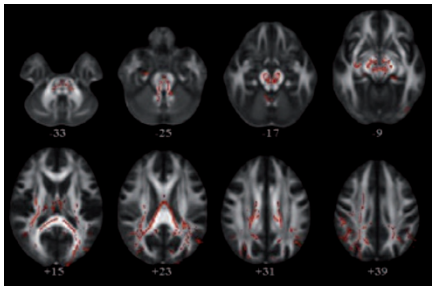
EEG and fetal brain damage

Keogh and colleagues examined whether spectral analysis of the electroencephalogram (EEG) can discriminate between mild and severe hypoxic–ischemic injury in the immature brain. Chronically instrumented fetal sheep at 0.7 gestation received either 15 or



25 minutes of complete umbilical cord occlusion. EEG power did not discriminate between mild and severe injury in the first 3 hours. Severe subcortical neural injury was associated with persistent loss of high-frequency activity. **See page 345**

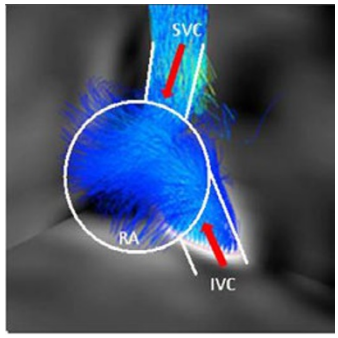
Thalamus and cognition



Zubiaurre-Elorza and colleagues analyzed the impact of periventricular leukomalacia (PVL)-associated thalamic injury on cognitive status at school age and its correlation with white matter (WM) integrity on magnetic resonance imaging. Their findings suggest that thalamic changes are a common correlate of WM microstructural alterations and might be involved in the cognitive deficits seen in preterm infants with PVL as they reach school age. **See page 354**

Intracardiac flow patterns

Groves and co-workers studied patterns of intracardiac flow in 13 newborns with three-dimensional cardiac magnetic resonance phase-contrast imaging. Disruption to intracardiac flow patterns might contribute to the multifactorial sequence that results in neonatal circulatory failure, although further research appears to be warranted to more precisely characterize its effects on cardiac mechanics and energetics. **See page 380**



ZEB1, androgen receptor, and hypospadia

ZEB1 is overexpressed in patients with severe hypospadias. Qiao *et al.* examined the interaction between ZEB1 and the androgen receptor (AR) *in vitro* and the expression of AR in boys with hypospadias. The findings show that AR is overexpressed in patients with severe hypospadias. Environmental estrogenic compounds may increase the risk of hypospadias by facilitating the interaction between ZEB1 and AR. **See page 393**