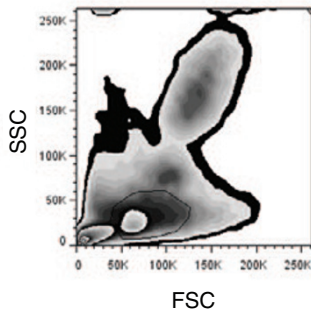


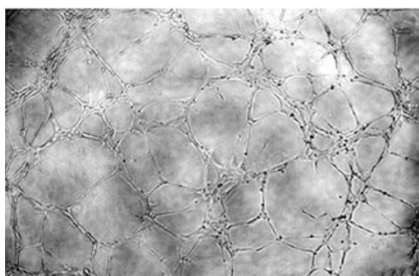
doi:10.1038/pr.2011.52

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Inflammation and infection are associated with premature birth and with activation of the fetal immune system. Crespo *et al.* hypothesized that exposure to microbial Toll-like receptor ligands plays an important role in neonatal T-cell maturation, that early exposure to microbial products results in early T-cell maturation, and that these matured effector cells change their homing-receptor patterns. The results are relevant for our understanding of neonatal T-cell maturation as well as of multiorgan inflammatory complications of prematurity.

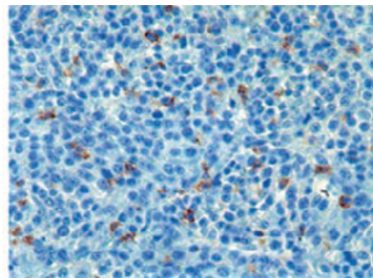
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Shelley and colleagues have possibly identified a novel hierarchy of human endothelial colony-forming cells (ECFCs) that are functionally defined by their proliferative and clonogenic potential and *in vivo* vessel-forming ability. Their work might establish the rhesus monkey as an important

preclinical model for evaluating the role and function of circulating ECFCs in vascular homeostasis and aging.

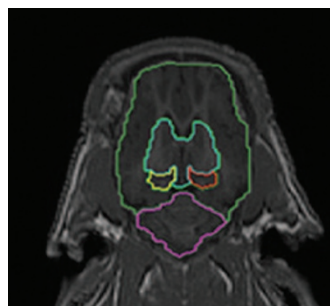
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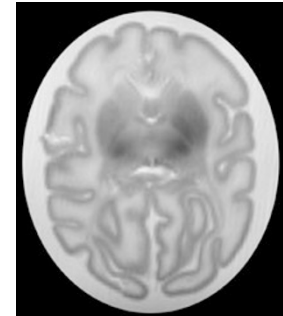
Barnés and colleagues investigated the use of dietary omega-3 (ω -3) polyunsaturated fatty acids (PUFAs) as a treatment of neuroblastoma, both alone and in combination with sunitinib, a broad-spectrum tyrosine kinase receptor inhibitor. The findings suggest a potential role for ω -3 PUFAs in the combination treatment of neuroblastoma.

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One limitation of using the domestic pig as a preclinical model for neurodevelopmental research is the lack of magnetic resonance imaging (MRI) methods for brain-volume quantification. The study by Conrad and colleagues suggests that MRI can provide accurate estimates of changes in brain-region volume in piglets over time during the neonatal period.

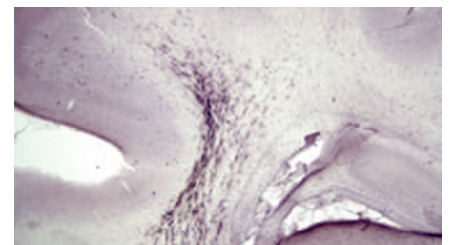


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Cerebral white-matter (WM) abnormalities on magnetic resonance imaging (MRI) correlate with neurodevelopmental disability in infants born prematurely. Griffith and colleagues assessed the histopathological correlates of MRI abnormalities in a preterm baboon model. Microstructural and anatomical abnormalities characteristic of WM injury can be identified by MRI, and these are more evident at term-equivalent postmenstrual age.

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Chronic hypoxia in rodents results in white-matter injury similar to that of the human preterm infant. Tao and colleagues employed diffusion tensor imaging and immunohistochemistry to study the impact of hypoxia in the immature ferret at time points pertinent to the preterm and term brain. The patterns of alteration in imaging and histology varied in relation to the developmental time at which hypoxia occurred.