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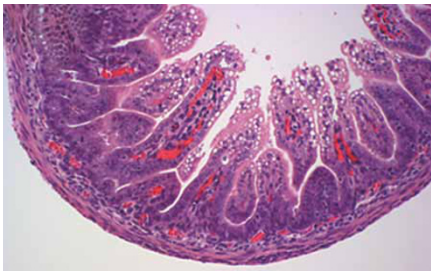
Caffeine and gastrointestinal function

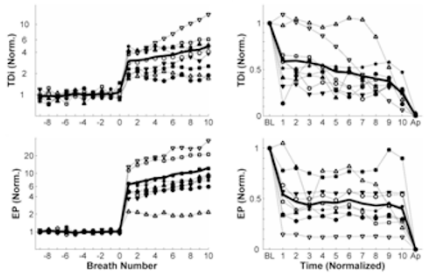
Caffeine is routinely utilized for treatment of apnea of prematurity, but its effect on newborn gastrointestinal function is unknown. Welsh and coauthors hypothesized that caffeine administered to newborn rats would impair motor function in the lower esophageal sphincter and stomach, delay gastric emptying time, and reduce gastrointestinal muscle tone. They found that caffeine administered to newborn rats at a dose comparable to the one used therapeutically in preterm neonates did indeed impair gastrointestinal motor function. **See page 24**

Neural stem cell transplantation in mice



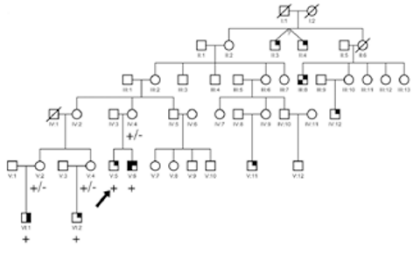
Wei and colleagues aimed to determine whether enteric neural stem cell (NSC) transplantation, in conjunction with heparin binding epidermal growth factor–like growth factor (HB-EGF), could protect against experimental necrotizing enterocolitis (NEC) in mice. Pups were exposed to experimental NEC and treated with either NSC alone, HB-EGF alone, NSC + HB-EGF, or NSC overexpressing HB-EGF. The results show that HB-EGF promotes NSC proliferation and migration. **See page 29**

Apnea detection by motion sensors



Real-time detection of apneic episodes remains a significant challenge. Waisman and coinvestigators explored the applicability of a novel method of monitoring respiratory dynamics to rapidly detect and classify apneic episodes. Obstructive apnea and hypopnea/central apnea were induced in tracheostomized rats. During central hypopneic/apneic episodes, miniature motion sensors successfully revealed a gradual decrease in tidal chest wall displacement. **See page 63**

Phenotype variability of *PRPS1* mutations



Mutations in *PRPS1* cause a variety of disorders, including phosphoribosylpyrophosphate synthetase-I superactivity, nonsyndromic sensorineural hearing impairment, Charcot-Marie-Tooth disease, and Arts syndrome. Gandía and coauthors tested the hypothesis that each mutation results in a specific phenotype, depending on its effects on the structure and function of the enzyme. They screened 13 unrelated Spanish families for *PRPS1* mutations and found two novel missense mutations in the propositi of two families with hearing impairment. **See page 97**

Pediatric drug trial recruitment

Recruitment of children for pediatric drug trials remains difficult despite regulations that require appropriate safety measures. In order to recommend improved recruitment strategies, Hein *et al*. interviewed 161 children to investigate factors associated with nonparticipation in clinical research. Recommendations to optimize participation in research include improving accessibility and increasing awareness of the social benefit. **See page 103**