At the 56th Annual Meeting of the Society of Toxicology, the presidential baton was passed to Dr Patricia Ganey. She joins several other past female SOT Presidents: Dr Meryl Karol, Dr Marion Ehrich, Dr Linda Birnbaum, Dr Cheryl Walker, and Dr Lois Lehman-McKeeman (also past ToxSci Editor). Dr Birnbaum, who has served as the Director of NIEHS since 2009, was awarded the Distinguished Toxicology Scholar Award at this year’s Annual Meeting. Last year, Dr Marcia McNutt, who has spoken at SOT, was named the President of the National Academy of Sciences. Trainees pursuing careers in toxicology, the majority of whom are women, need strong scientific role models. Although there is still work to do to ensure even broader engagement and recognition of women and scientists from many backgrounds, we are proud to support a diverse cadre of role models to mentor the next generation of toxicologists.—Gary W. Miller

Editor’s Highlights

Volatile organics and sleep apnea: Numerous volatile compounds, including those formed endogenously and those from exogenous exposures are dependent on normal respiration and gas exchange in the lung for their elimination. Aoki and colleagues (pp. 362) examined the potential for such volatile compounds to be retained and build up in concentration in patients with the relatively common respiratory disorder of obstructive sleep apnea, wherein ventilation can be completely obstructed during sleep as frequently as every minute throughout the night. Apneic patients exhibit substantial decrements in total ventilation and gas exchange throughout the night, which could, in theory, reduce the elimination of volatile compounds. Aoki and colleagues demonstrated numerous volatile organic compounds to be elevated in the exhaled breath of apneic patients. Although some compounds were not substantially elevated, such as toluene (elevated in the severely apneic group), other compounds demonstrated profound build up (ethylbenzene was elevated 15-fold). Moreover, the authors found that the concentrations of two major representative compounds, isoprene and acetone, were significantly reduced by the standard therapy for obstructive sleep apnea, continuous positive airway pressure, which maintains airway patency, improving ventilation as well as sleep patterns. The pathophysiological role of these volatile organics has yet to be determined, but the observation of this phenomenon is seminal and compelling. View Abstract—Matthew J. Campen

Toxicity screening in yeast: Off target effects of pharmaceuticals continue to pose a challenge for effective management of complex mental and neurobehavioral disorders. Many of the most commonly prescribed drugs lead to significant side effects by the modulation of off target proteins. The systematic identification of off target proteins and pathways remains challenging. In the study by Caldara et al. (pp. 538) the authors developed a screening and identification strategy using baker’s yeast, Saccharomyces cerevisiae, to identify the differential pathways and target proteins impacted by exposure to a suite of common antidepressants, and neuroleptics. The authors used a multidimensional approach that included physiological, microscopic, transcriptomic, and genetic measures coupled with network analysis to reveal that these compounds produce chemical specific effects in yeast. Importantly, the majority of the identified modulated networks are conserved in humans. For example, the Notch pathway was identified as particularly responsive to these compounds. Overall, this systematic approach takes advantage of the unique attributes of the yeast system and may lead to the discovery of human relevant off target processes and proteins. View Abstract—Robert L. Tanguay
Gadolinium in neonates: Gadolinium is a rare earth element that is used as a contrast enhancement agent for medical imaging. The FDA guidelines state that it can only be used during pregnancy if the potential benefits outweigh the potential risks to the fetus or mother. Preclinical studies on the effects of gadolinium in animal models have been inconsistent, and clinical studies have not comprehensively evaluated associations between gadolinium exposure and neonatal outcomes. Thus, Amin and colleagues (pp. 520) conducted a prospective study of 135 infants to examine the associations between gadolinium exposure and neonatal outcomes, including gestational age at birth, perinatal asphyxia, birth weight, head circumference at birth, congenital malformations, respiratory distress syndrome, lung disease, retinopathy, enterocolitis, and renal function. The authors found that in utero exposure to gadolinium was not associated with any of the selected neonatal outcomes. Collectively, these findings indicate that in utero gadolinium exposure may not be associated with adverse neonatal outcomes in humans. View Abstract—Jodi A. Flaws