What to Expect

In this volume of *Vanderbilt Reviews Neuroscience*, the qualifying class of 2009 reviews the literature on topics from the molecular underpinnings of schizophrenia to a characterization of $GABA_A$ receptors; from the use of *C. elegans* as a model system for psychoactive drugs to the use of crocodilians in the study of mechanoreception. For its second volume ever, *VRN* 2010 stands to be just as strong an issue as last year, and demonstrate the breadth and depth of the Graduate Program as it spans the molecular to the mind.

As can be expected from a strong program, many high-impact papers were published in late 2009 and early 2010. These are highlighted by our exceptional team of writers in the popular "Research Highlights" section. For the second year in a row, Cohen *et al.* offered an exceptional study in which the team of researchers compared the efficacy of EEG to other, more invasive electrophysiological techniques (p. 5); Treadway *et al.* demonstrated a role for motivation in rewarding tasks (p. 9); Wu *et al.* published a study in *Nature Neuroscience* which identified a group of glial cell precursors that serve as developmental trash-collectors through the expression of two receptors (p. 7).

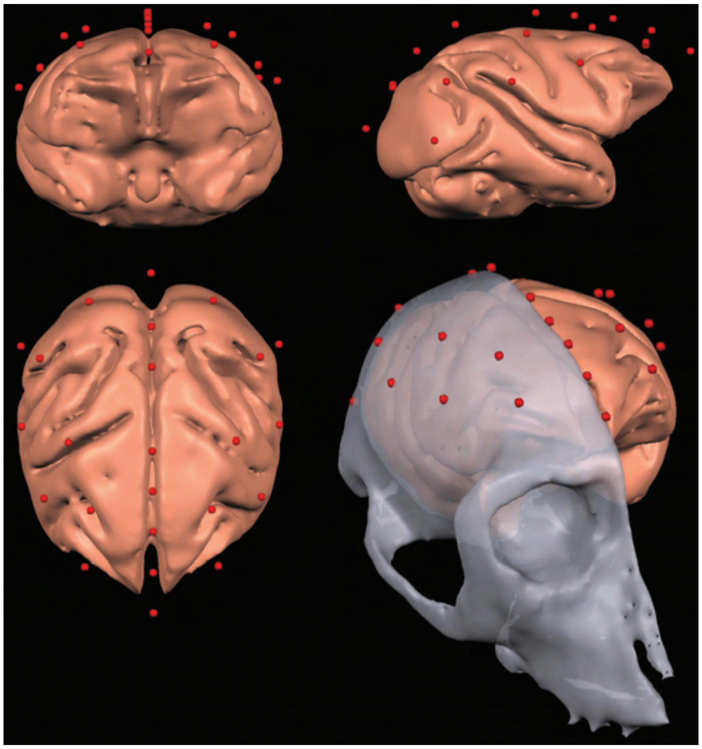
Neurotoxicity was a big topic at Vanderbilt University this past year, as was the ever-popular dopamine. Williams *et al*. demonstrated that mutant huntingtin, the notorious protein responsible for Huntington's Disease, may actually provide a neuroprotective effect against manganese toxicity (p. 8). In the same vein, Stanwood *et al.* showed that manganese exposure may change the cytoarchitecture of dopamine neurons in the substantia nigra, possibly contributing to Parkinsonian symptoms (p. 8). On the systems side, multisensory integration was big (p. 6), as was novelty, detection and recognition (pp. 7-8).

Peruse this volume at your leisure. The Contents (p. 1) should be clear and easy to follow. As always, feel free to contact us with suggestions; we're always up for making this journal better…

C. M. Ciarleglio
C. A. Doll
M. Eapen

ON THE COVER…

Anatomical reconstruction of a rhesus macaque skull and brain based on a structural magnetic resonance image. Red dots indicate stereotaxic locations of electrodes implanted on the surface of the skull beneath the scalp and muscle tissue to measure the electroencephalogram (EEG) . The goal of this research is to compare directly human and monkey EEG and event-related potentials (Woodman et al. 2007). This surgical method allows accurate comparisons between EEGs by ensuring that the underlying electrical signals propagate through similar layers of tissue and bone in both species. The electrode locations mimic the international 10-20 electrode coordinate system used in human EEG research (Jasper, 1958). First, a template of the adapted macaque 10-20 system was created by measuring electrode distances on a model skull. Second, stereotaxic positions of each proposed electrode location were recorded with accuracy in tens of millimeters, along with the locations of several anatomical landmarks. Third, during surgical implantation, the same anatomical landmarks were located allowing the electrode template to be rescaled to fit the size of the subjects skull. Finally, the anatomical landmarks measured during the procedure were located in a MRI taken prior to the operation, and used to guide virtual placement of electrodes based on surgical records. The voltages recorded from these electrodes while monkeys perform cognitively demanding tasks will allow researchers in Jeffrey Schall and Geoff Woodman's laboratories to construct scalp surface potential maps and perform dipole source localization necessary to understand how intracranial measures recorded from monkeys relate to extracranial measures recorded from humans.



-David Godlove