

## **FACILITIES & OTHER RESOURCES – PROJECT 3 – BIOMARKERS OF HUMAN EPILEPTOGENESIS AFTER TRAUMATIC BRAIN INJURY**

### **University of California, Los Angeles (UCLA)**

**Level 1 Trauma Center and Trauma Program:** Ronald Reagan UCLA Medical Center is a Level 1 trauma center with an integrated trauma and neurotrauma service. Joint patient treatment occurs under the direction of Dr. Vespa (head of the Neurotrauma ICU) and Dr. Henry Cryer (head of trauma surgery). Over 1500 trauma admissions and over 125 moderate to severe TBI are admitted each year.

**Neuro/Trauma Intensive Care Unit:** A 24 bed state of the art Neurointensive Care Unit features continuous EEG monitoring at each bed, a high bandwidth data fiber-optic network with data capture routed via a data acquisition system to a Cray Supercomputer and Data Repository. A dedicated team of 150 NeuroICU nurses, and a team of NeuroICU Fellows and Nurse Practitioners care for all TBI patients. Multimodality monitoring using cEEG, depth EEG, cerebral microdialysis, Hemedex CBF, Brain tissue oxygen is performed as standard of care with nursing documentation and nursing protocols derived to facilitate the monitoring. The ICU is physically adjacent to an advanced PET/MRI scanning suite so cutting-edge neuroimaging techniques can be administered to ICU patients with minimal clinical disruption.

**Continuous EEG Systems:** Each ICU bed has a dedicated EEG monitor capable of 32 channel of monitoring including surface, depth and strip electrode data inputs. A separate 10 terabyte permanent storage system for cEEG data is located in the UCLA Data Repository on the third floor of the RR-UCLA Medical Center.

**Data Repository and Datacenter:** A 10 terabyte storage system is located in a secure industry grade and environmentally controlled data center on the third floor of RR-UCLA Medical Center. Data are routed to this center and subsequently archived in this location. An 8- Node Cray supercomputer is housed in the NeuroICU and is connected to each bedside and the data repository. Each investigator has a PC or Mac computer capable of interfacing with the data repository and Supercomputer.

These combined resources will enable an integrated and collaborative study of human physiology in the intensive care unit for patients with traumatic brain injury. The specific aims require this type of environment and resources.