September 30th, 2014

Allison Diamond

Associate Editor – Life Sciences

JoVE

1 Alewife Center, Suite 200

Cambridge, MA 02140

Dear Ms. Diamond,

We are pleased to submit our manuscript entitled “Investigating the Function of Deep Cortical and Subcortical Structures Using Stereotactic Electoecephalography: Lessons from the Anterior Cingulate Cortex” to be considered for publication in the Journal of Visualized Experiments (JoVE). We believe that JoVE’s unique multimedia format is perfect for this study as it combines a surgical technique with task-based human subject research in order to obtain local field potential data (LFP) from specific neuronal regions. Basic science studies that use single neuron or LFP recordings in their analysis frequently have minimal detail regarding the surgical techniques used to place the electrodes properly. On the other hand, clinically focused surgical research demonstrating new or updated techniques will frequently include patient outcomes and complication rates but rarely include any data that can be used to investigate neuronal function. Thus, we believe this manuscript, if published in JoVE’s multimedial format, has the potential to fill this significant gap in the literature.

In this paper, we describe how the implantation of stereotactic electroencephalography (SEEG) electrodes into patients with medically refractory epilepsy can be used to investigate cognitive function in regions of the brain that have traditionally been difficult to access for neuroscientists. We include a description of the SEEG procedure, the components and process required to record LFP data from subjects while they are engaged in a behavioral task and demonstrate how signals are recorded and analyzed from electrodes in the dorsal anterior cingulate cortex, an area intimately involved in decision-making.

Drs. Sheth, McKhann and Feldstein contributed to the patient selection and surgical procedures portion of the manuscript. All other authors contributed to the writing, data preparation and manipulation and review of the manuscript. Drs. Sheth, McGovern and Ms. Ratneswaran were involved in the conception of the manuscript. The material in this manuscript has not been published and is not being considered for publication elsewhere in whole or in part in any language. We thank you in advance for consideration and review of our work.

Sincerely,

Robert McGovern

Department of Neurological Surgery

Columbia University Medical Center

E-mail: ram2140@columbia.edu