Dr. Julia Chang, Professor, Physical Therapy

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Mentor to Physical Therapy student research projects.

Research objectives

Infantile epilepsy is a known neurological disorder affecting infants and children. In cases where anti-epilepsy drugs (AEDs) cannot control seizures, children with therapeutic-resistant infantile epilepsy (such as cortical dysplasia, tuberous sclerosis complex, Rasmussens, strokes and other pathologies) require neurosurgical resections of brain tissue to manage the frequent seizures. I am a researcher in the laboratory of Neurosurgeon, Gary W. Mathern, M.D. at the David Geffen UCLA School of Medicine, Department of Neurosurgery. Our research goal is to use surgical resected tissue to determine molecular and pathophysiological mechanisms underlying epileptogenesis. It is our hope that by understanding the mechanisms of infantile epilepsy, new therapeutic approaches to treating infantile epilepsy will be developed.

Publications

Chang JW, Arnold MM, Rozenbaum A, Caputo A, Schweizer FE, Huynh M, Mathern GW, Sarafian T, and Watson JB. Synaptoneurosome micromethod for fractionation of mouse and human brain, and primary neuronal cultures. J Neuroscience Methods, 2012, 211:289-295.

Gabard, DL, Lowe, DL, and Chang, JW. Current and Future Instructional Methods and Influencing Factors in Anatomy Instruction in Physical Therapy and Medical Schools in the U.S. J. Allied Health 41(2)53-62. 2012

Cepeda C, Andre VM, Hauptman JS, Yamazaki I, Huynh MN, Chang JW, Chen JY, Fisher RS, Vinters HV, Levine MS, and Mathern GW. Enhanced GABAergic network and receptor function in pediatric cortical dysplasia Type IIB compared with Tuberous Sclerosis Complex. Neurobiology of Disease, 2012 Jan;45(1):310-21. Epub: 23 August 2011. PMID: 21889982

Chandra PS, Salamon N, Nguyen ST, Chang JW, Huynh MN, Cepeda C, Leite JP, Neder L, Koh S, Vinters HV, and Mathern GW. Infantile spasms-associated microencephaly in tuberous sclerosis complex and cortical dysplasia. Neurology, 2007, 68:438-445.

Salamon N, Andres M, Chute DJ, Nguyen ST, Chang JW, Huynh MN, Chandra PS, Andre VM, Cepeda C, Levine MS, Leite JP, Neder L, Vinters HV, and Mathern GW. Contralateral hemimicrencephaly and clinical-pathologic correlations in children with hemimegalencephaly. Brain, 2006, 129(Pt 2):352-365. Epub November 15, 2005.

Chang, J.W., D.A. Young, P.D. Coleman, and O'Banion MK. 2001. Two-dimensional gel analysis of secreted proteins induced by interleukin-1beta in rat astrocytes. J. Neurochem Int. Nov; 39(5-6):349-59

Sison CAM, Chang JW, Pedram K, Chander P, Nguyen ST, Huynh MN, Hemb M, Velasco T, and Mathern GW. Molecular mechanisms underlying infantile epilepsy. Annual Biomedical Research Conference for Minority Students (ABRCMS), 2009

Nguyen ST, Huynh MN, Chau JY, Andre VM, Cepeda C, Watson JB, Vinters HV, Chang JW, and Mathern GW. Glutamic acid decarboxylase67 mRNA expression in pediatric cortical dysplasia patients. Program Number: 547.12. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience.

Oh T, Mathern G, Kwiakowski D, Vinters H, Salamon N, Cepeda C, Qiao J, Chang JW, Huynh M, Levine M, Wu J and Pedram K. How genotype influences clinical features, cellular electrophysiology, and microanatomy in pediatric patients with tuberous sclerosis complex. J Investigative Medicine 59(1):200-201, 2011

Chang, J.W., H.V. Vinters, J.B. Watson. 1999. Mini-synaptoneurosomes from human frontal cortex of control and Alzheimer’s disease. Soc. Neurosci. Abstr. 25:592.

Watson, J.B., J.W. Chang, H.V. Vinters, U.P Devaskar. 1999. Dendritic MAP mRNAs and Dystrophic neurites. J. Neurochemistry 72:S60. Suppl.

Research Grants

NIH/NINDS R01 NS 38992 Pathophysiology of Developing Dysplastic Human Cortex. 01/15/10-12/31/14

Principal Investigator: Gary W. Mathern, M.D

NIH-R01 – “Pathophysiology of Developing Dysplastic Human Cortex.” April 1, 2005-March 31, 2010.

Institution: David Geffen UCLA School of Medicine

Principal Investigator: Gary Mathern, M.D.

Courses Recently Taught:

BIO 50A/L - Human Anatomy

BIO 50B/L - Human Physiology

BIO 115A/B - Pre-Physical Therapy research

PT 401 - Gross Anatomy

PT 406 - Lifespan Development

PT 407 - Neuroscience

PT 495A - Research VI: Research Development A

PT 495B - Research VII: Research Development B

PT 495C - Research VIII: Research Development C