The Robert Packard Center for ALS Research Projects Funded by MDA's Wings Over Wall Street® 2007

Investigator	Project	Cost	Summary
Philip C. Wong, PhD & Tong Li, PhD	*Generation and Characterization of Wildtype and Mutant Senetaxin Transgenic Mice*	$110,077	Missense mutations in a gene termed Senataxin have been identified in families with motor neuron disease. Using this genetic information, we are developing a mouse model for this type of human motor neuron disease in order to clarify the root cause for this illness. Information derived from these studies may contribute towards our understanding of the cause of ALS and finding a treatment for this devastating disease.
Alex Kolodkin, PhD & Thomas Lloyd, MD, Ph	*A drosophila model of motor neuron disease using mutations in p150 dynactin*	$66,000	The goal of this project is to create a genetic model of motor neuron disease in Drosophila and then use this model to search for new drug targets for ALS. This is a continuation of a research project that has successfully generated and characterized transgenic flies that overexpress wild type and mutant P150.

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Shan Sockanathan, PhD	*Retinoid-dependent mechanisms of spinal motor neuron specification & function*	$88,000	Retinoic acid (RA) signals are essential in spinal motor neuron development. RA regulates two genes, we've found, each active at different times in developing motor neurons. The genes' protein products may critically affect spinal motor neuron differentiation and behavior. The continuation of this project aims to further investigate these genes and their impact on motor neuron development.
Hongjun Song, PhD	*Development of ALS models using embryonic stem cells*	$110,000	Recent studies have identified mutations in specific genes that lead to ALS and animal models have been successfully established to examine mechanisms underlying motor neuron degeneration. This research project aims to establish human ALS models using pluripotnet human embryonic stem cells. This study will complement ongoing research effort using rodent models and may reveal novel mechanisms underlying human ALS.

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Philip Wong, PhD	*Generation and characterization of wildtype and mutant dynactin p150Glued mouse models*	$108,962	This study is a continuation of Dr. Wong's work focusing on mutations in the gene for dynactin, part of the protein motor that drives a cell's transport system, and are suspect as a cause of ALS. In a recent review of more than 2,000 patients and controls, however, effects of various dynactin mutations weren't obvious. So a more direct approach using mutation-bearing mouse models capable of thorough analysis should clarify effects. This approach could be especially helpful in explaining mechanisms of sporadic ALS.
Philip Wong, PhD	*In vitro assessment of functional consequences of human dynactin mutations*	$38,500	Mutations in the protein dynactin are found in a significant number of ALS patients. Like in our previous application, Dr. Wong will try to establish a cause-effect relationship for the mutations. Therefore, this project aims to - to perform binding studies for arp1, microtubules and dynein for each of the mutations - to perform protein expression studies in motor neuron cultures - to perform studies of dendritic and axonal transport in these cultures - to perform yeast two hybrid screens to look after potential binding partners which could lead to candidates for further mutation screening