

Motor System Connectivity Influences in Amyotrophic Lateral Sclerosis

Development grant jointly funded by the AANEM Foundation and the Muscular Dystrophy Association (MDA) was awarded in 2016 to fund the following project.



Christi L. Kolarcik, PhD

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Christi L. Kolarcik, PhD
University of Pittsburgh, Pittsburgh, PA

A development grant jointly funded by the AANEM Foundation and the MDA was awarded to Christi L. Kolarcik, a postdoctoral fellow at the University of Pittsburgh in Pittsburgh, PA. Dr. Kolarcik was awarded \$180,000 over three years.

Dr. Kolarcik shared her thoughts on her research and this award:

Summarize your research:

Although ALS is regarded as a disorder of the motor system, we rarely consider the entire neuroanatomical system in our studies of the neurodegeneration that occurs in ALS. The results from our proposed studies will provide a unique and innovative perspective on the motor neuron degeneration that occurs with ALS and represent a fundamental shift in our understanding of how and when the motor system is

affected in disease. First, the neuroanatomical findings will provide a basis for establishing the motor circuitry in the mouse and delineate the connectivity changes that occur with ALS. By identifying the most vulnerable parts of the motor system, targets for delivery of genes/drugs/neurotrophic factors could be accomplished. Perhaps more importantly, our studies offer significant opportunities to better understand the underlying causes of motor neuron and motor system degeneration. Axonal transport, synaptic integrity, prion-like spreading and muscle-fiber type relate to a number of proposed disease mechanisms; a clearer understanding of the contribution of each will promote the development of therapeutics for ALS and positively impact clinical care/disease management.

What spurred your interest in this type of research?

As a graduate student, I was fortunate to have kept a clinical focus to my basic research having had both Robert Bowser, PhD, and David Lacomis, MD, as mentors. In addition, I began volunteering in the local ALS community as a graduate student and continue to do so today. Working directly with patients and families affected by ALS is a constant source of inspiration and motivation, and I feel a genuine connection to every member of this community.

How will this award help you in your research?

This award is extremely important. Not only does it allow me to pursue a novel avenue of scientific discovery but it represents my pathway to an independent research career. I have been working in this field for about 10 years, building a solid yet unique foundation, and this award is facilitating my transition to independence.

What else would you like to share with AANEM members?

I am grateful for the support of the AANEM and look forward to meeting more of the membership in the near future.