



Q & A with Stefanie Geisler MD
Washington University
2014 Clinical Research Training Fellowship Recipient



Q: Describe your research project.

A: My research focuses on peripheral neuropathies, which means sick nerves in the body. Peripheral neuropathies afflict millions of people and are the most common neurodegenerative disease in the USA. Peripheral neuropathies are characterized by intense pain, numbness and weakness, mainly in the feet, lower legs and hands. Many neuropathies are caused by the deterioration or death of long nerve fibers that innervate the legs and arms. There is currently no cure for nerve fiber degeneration. Chemotherapies given to treat different forms of cancer are a common cause of peripheral neuropathies. In this case we know why the nerve is sick and that the sickness starts with the beginning of the chemotherapy. If we had a drug that would keep nerve fibers alive, we might be able to treat the patient with this drug during chemotherapy administration and in this way prevent nerve fibers from deteriorating and even dying. Exciting work from my mentors and other laboratories recently showed that a certain protein (called Sarm1) is required for nerve fibers to die. I am investigating whether removing or interfering with this protein protects nerve fibers from dying during chemotherapy. This protein does not act by itself but recruits other proteins in what one might think of as a “death pathway”. I am also trying to identify other proteins in this “death pathway”, which may then be targeted therapeutically. We hope that results of these studies will lay the foundation for the development of new treatments for chemotherapy-induced neuropathies.

Q: Explain how you feel to have received this fellowship.

A: The Clinical Research Training fellowship by the American Brain Foundation has been a very important step toward achieving my life goal of becoming a physician-scientist who generates new knowledge that will be of benefit to patients. I will be forever grateful and indebted to the American Academy of Neurology and the American Brain Foundation for having given me this opportunity.

Q: What are your research plans going forward?

A: I will exhaust all efforts to find a way to eliminate or decrease chemotherapy induced neuropathy. If I am able to do this, I will continue to seek ways to treat neuropathies for which we don't know the cause. Support I received from the fellowship allowed me to begin this research project and generate abundant data. As a result, I was awarded a five-year grant from the National Institutes of Health, which allows me to continue this line of research.