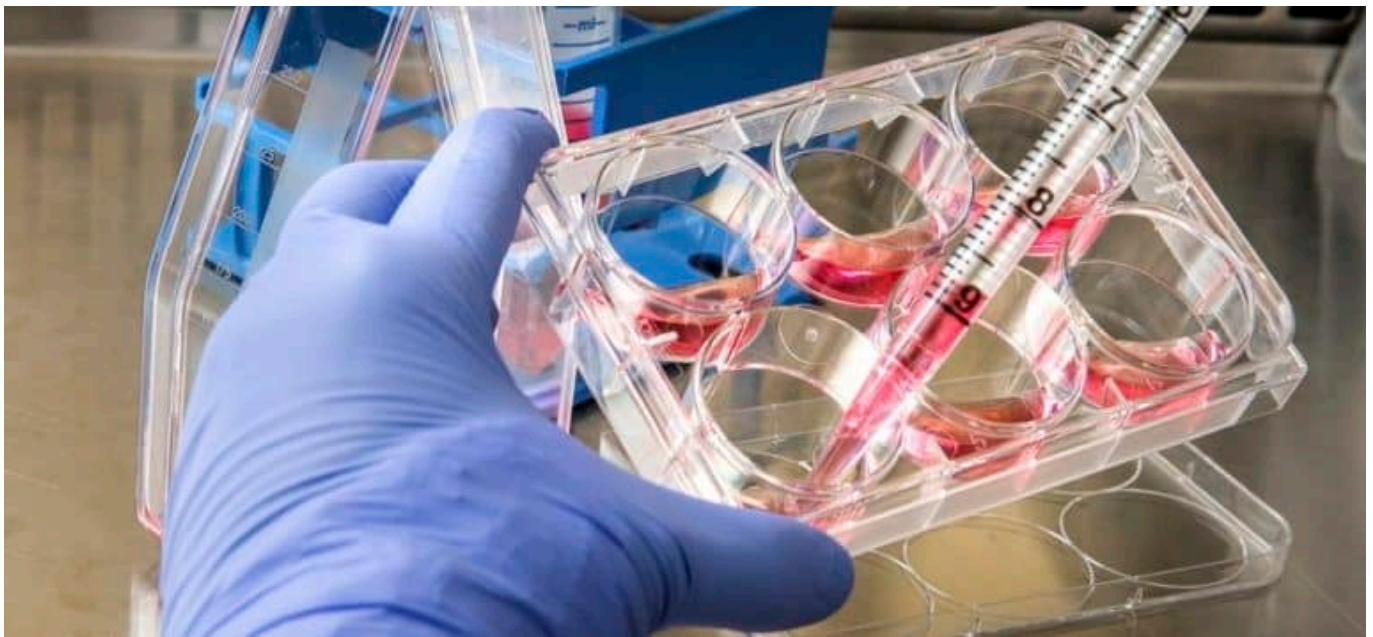


Newest MS research that inspires us



Research that runs the gamut from genetics and cutting-edge technology to inequities in healthcare highlighted the theme of the National MS Society's 2022 Leadership Conference: "A Cure Is Everything." These studies focus on not only bringing a cure closer for the nearly 1 million people in the U.S. who live with multiple sclerosis but help them live their best lives today.

Using genetics to help restore biological function

Dr. Ashley Beechum, PhD, is a Society-funded research fellow who is exploring the role of genetic variants in MS.

"It's been known for some time that genetics play a role in the development of multiple sclerosis, but the exact genetic variants that influence disease onset and the mechanisms by which they act are unclear," Beechum said. "In addition, Black and Hispanic people are underrepresented in genetic research of multiple sclerosis, despite having similar disease prevalence to Europeans."

She pointed out that current disease-modifying therapies (DMTs) focus on stopping disease progression and alleviating symptoms but that the ultimate goal is to restore the biological pathway that was altered to initiate the disease onset.

Her research is focused on identifying the genetic variants that predispose people to get MS and understanding how the variants act so that new and specific therapies can be developed to restore proper biological function.

"While my research is ongoing, what has been learned so far is really interesting. The focus right now is on genetic discovery, especially novel genetic discovery in Hispanic and Black communities. The structure of the genome is different in different racial groups, and we have

learned that DNA segments are typically shorter in Black and Hispanic people than they are in people of European descent. This helps us narrow in more specifically on the genetic sequences that contribute to MS across populations.”

Beechum’s research not only is helping us move toward a cure but ensures that there will be equity when a cure is found.

Empowering recovery outside the lab

Dr. Brett Fling, PhD, is a Harry Weaver Research Fellow funded by the Society, and director of the Sensorimotor Neuroimaging Laboratory at Colorado State University.

“In my work at the Sensorimotor Neuroimaging Lab, we’re helping people living with MS walk more functionally through improvements in gait and walking function,” Fling said. “We have a lot of fancy (i.e., expensive) equipment in our lab — things like split-belt treadmills, force plates and wireless inertial measuring units. But that doesn’t always translate into helping people in their everyday lives where they don’t have access to that fancy lab equipment.”

His work is critical in helping those living with MS improve their mobility outside the lab.

“We have seen that when people come in for a four- to six-week program, we can produce significant improvements in their mobility, which is great, but then it’s discouraging for both us and them if that progress doesn’t last beyond their participation in our study.”

Fling is focused on helping make people more functional and independent and on improving their quality of life. He is introducing wearable technologies like wireless inertial measuring units — think of a more sophisticated Apple Watch or Fitbit — to help bring the benefits of fancy lab technology into people’s everyday lives.

At the lab, Fling has been pairing wearable functional electrical stimulation during in-lab sessions with more cumbersome lab-based equipment. Importantly, people are then able to take these wearable sensors home to see whether improvements in the lab can be maintained during activities of daily living.

“Our recent work suggests that people with MS are just as capable as those without MS at adapting and improving both their balance control and walking performance while in the laboratory setting,” Fling said. “Our current work is providing promising results. We are able to translate those improvements into daily life by providing portable, wearable stimulation to muscles and nerves in the legs while folks go about their normal daily routine.”

Enriching lives through healthcare equity

Dr. Kimystian Harrison, MD, is a Sylvia Lawry Fellow, funded by the Society. The Sylvia Lawry Fellowship program provides an individual with an MD or equivalent medical degree with up to 3 years of formal training under the tutelage of an established investigator, in key elements associated with conducting clinical trials in MS.

“While we wait for a cure, my research is focused on enriching the lives of those living with MS as much as I possibly can,” Harrison said.

She pointed out that there is a disparity in the health outcomes of people living with MS based on their race. Black adults with MS experience advanced disease progression and worse overall health outcomes compared to white adults, and the reason is unclear. Some of her research has aimed to fill this gap by exploring the differences in racial and social factors among people living with MS and their effects on the healthcare experience.

“From one study, we found that Black people reported more medical mistrust than white people. And Black adults living in socioeconomically advantaged areas still reported more discrimination by their healthcare providers - with significant effects,” Harrison said.

Even without socioeconomic barriers, racial factors still lead to medical mistrust, which is a barrier to healthcare for minority groups, an issue that requires more attention in the MS community.

“In order to bring new treatments to everyone living with MS and stop disease progression in its tracks, we need representation among our clinical trial participants. We need more research like the CHIMES (Characterization of Ocrelizumab in Minorities with Multiple Sclerosis), trial I’m involved in that’s studying the effects of ocrelizumab specifically in minorities living with MS. And to encourage participation in this research, we need to create trust among all populations living with MS,” Harrison said.

This research is just a snapshot of the groundbreaking work that is not only bringing us closer to a cure, but enriching experiences, improving the quality of healthcare and empowering everyone living with MS to take back control.