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Beverly L. Davidson received her B.S. in Biology from the Nebraska Wesleyan University, and her Ph.D. in Biological Chemistry from the University of Michigan.

Professor Davidson's research is focused on inherited genetic diseases that cause central nervous system dysfunction, with a focus on (1) recessive, childhood onset neurodegenerative disease, in particular the lysosomal storage diseases such as the Mucopolysaccharidoses and Batten's disease; and (2) dominant genetic diseases; for example, the CAG repeat disorders (Huntington's disease (HD) and Spinocerebellar ataxia), and (3), understanding how noncoding RNAs participate in neural development and neurodegenerative diseases processes. Her research on childhood onset neurodegenerative diseases is focused on experiments to better understand the biochemistry and cell biology of proteins deficient in these disorders, and to develop gene and small molecule based medicines for therapy. In recent work, she demonstrated that the application of recombinant viral vectors to animal models of storage disease reversed CNS deficits. To approach therapies for dominant disorders her laboratory developed and tested gene silencing and CrispR/Cas9 editing strategies for reducing expression of the disease gene in patient cells and in mice models. The Davidson lab, along with colleagues experienced in gene-based medicine delivery to humans, are advancing these promising preclinical studies to clinical trials in patients.

Recent honors include the 2009 Mathilde Solowey Award (NIH), the 2011 S.J. DeArmond Lecturer (AANP), the 2011 Presidential Lecture (Ulowa), the 2012 Carver College of Medicine Faculty Service Award (Ulowa) and the University of Iowa Innovator Award (2012), the 2014 Chair, Electorate Nominating Committee, Medical Sciences Section (AAAS), appointed to the National Advisory Council, NINDS (2014-2018); 2015 appointee to Scientific Advisory Boards of the Huntington Study Group and the Medical Research Advisory Board of the National Ataxia Foundation. In 2017 she was elected to the American Academy of Arts and Sciences, was appointed a member of the International Selection Committee for the 2018 Bower Award and Prize for Achievement in Science at the Franklin Institute, and was invited to join the Packard Center Board of Advisors at Johns Hopkins University. In 2018, Dr. Davidson was elected to the College of Physicians of Philadelphia. She also received the F.E. Bennett Memorial Lectureship Award from the American Neurological Association in October 2018. In April 2019 Dr. Davidson was elected Vice President of the Board of Directors for the American Society of Gene and Cell Therapy (ASGCT), the largest association of individuals involved in gene and cell therapy research. Most recently, Dr. Davidson was elected to the National Academy of Medicine, effective October 1, 2019.