

# Meet the Researcher



## Divya Chari, M.D.

*Mass Eye and Ear*

Chari received her medical degree from the Columbia University Vagelos College of Physicians and Surgeons. She is an investigator in the Jenks Vestibular Diagnostic and Physiology Laboratories at Mass Eye and Ear and a lecturer of otolaryngology–head and neck surgery at Harvard Medical School, and holds a clinical appointment at UMass Memorial Medical Center. Chari's project is generously funded by an anonymous donor.

Research on Ménière's disease (MD) has been hampered because the "disease" encompasses a wide range of heterogeneous disorders that share the symptoms of a fluctuating, progressive, sensorineural hearing loss and periodic vertigo. In addition, there is no established animal model of MD and treatment is imprecise and aimed at mitigating symptoms rather than reversing the disease.

The genesis for this project arose through a collaboration with Andreas Eckhard, M.D., a co-investigator on the grant. Using postmortem human temporal bone specimens and in vivo radiologic studies, Dr. Eckhard and team demonstrated that MD patients could be classified into distinct subtypes. One subtype, MDhp, demonstrated an incompletely developed (hypoplastic) endolymphatic sac and vestibular aqueduct and had a high prevalence of X-linked hypophosphatemia. (XLH).

XLH is a genetic phosphate metabolism and bone growth disorder caused by a loss-of-function variant in the PheX gene. Our preliminary studies suggest that the PheX gene-deficient XLH mouse shares features with the MDhp cohort: hearing loss and balance dysfunction, endolymphatic hydrops, and hypoplasia of the endolymphatic sac and vestibular aqueduct. Our aim is to show that the PheX gene-deficient mouse can be a reliable animal model for the MDhp subtype, with an overall goal of developing gene diagnostics for MD and potential treatment options, such as gene therapy, to halt its progression.

As an undergrad at Yale, I enrolled in an introductory molecular biochemistry course. The guest professor was Joan Steitz, Ph.D., a leading scientist in the field. Dr. Steitz is best known for her pioneering work in RNA.

Her enthusiasm for the course material was contagious and inspired me to pursue a path of scientific discovery. Her mentorship was also invaluable, and now mentoring students myself is an especially rewarding part of my career.

I am currently a practicing surgeon-scientist with a clinical appointment as an otologist/neurotologist and a principal investigator of a translational laboratory on MD. I medically and surgically treat patients with hearing and balance problems, including MD. Informed by my patients, I want to improve diagnostics and outcomes in otologic disorders.

I like to spend time outdoors with my family—my husband, our two children, and our dog Frankie. We love to hike and bike in the summer and ski in the winter. I also play classical violin, a childhood passion. Much of my early research endeavors relied on my music knowledge as I studied music and complex sound perception in cochlear implant users, and I still find that some of my best research ideas come after relaxing with music. —

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