

Emerging Research Grants (ERG)

As one of the only funding sources available in hearing and balance science, HHF's ERG program is critical. Without our support, these scientists would not have the needed resources for innovative approaches toward preventing, researching, and finding better treatments for hearing and balance conditions.

Meet the Researcher

Francisco Barros-Becker, Ph.D.

University of Washington



Barros-Becker received his doctorate from the University of Wisconsin-Madison and is now a postdoctoral fellow at the University of Washington, in the lab of David Raible, Ph.D. Barros-Becker is a 2023 Emerging Research Grants recipient.

SINCE THE START of my scientific studies, in Santiago, Chile, I've always been interested in understanding how cells and organisms can respond to their surroundings. Through my doctoral studies, with Anna Huttenlocher, M.D., at the University of Wisconsin-Madison, I was able to study how immune cells migrate through complex environments and how they interact among them when actively responding to a wound. Today, I continue to follow my scientific interests under the guidance of David Raible, Ph.D., at the University of Washington. I feel fortunate that I can combine my passion for landscape photography with science, as I focus on trying to understand how hearing cells respond to stress when exposed to ototoxic drugs using advanced microscopy techniques.

HAIR CELLS, located in the inner ear, are highly specialized cells that have a central role in hearing and balance. Our group had observed that hair cells, when exposed to different aminoglycosides, could die rapidly or in a delayed manner. Microscopy imaging of this process showed that aminoglycosides leading to a delayed death tend to localize inside membranous structures called vesicles, inside hair cells. We think that the capture and delivery of aminoglycosides into vesicles is protecting the hair cell and delaying the toxic effects of these drugs. Using the genetic and optical advantages of the zebrafish, coupled with super-resolution microscopy and automated image analysis, we aim to understand how vesicles collect and contain aminoglycosides within them.

MY HIGH SCHOOL BIOLOGY TEACHER and the passion she brought to the topic was pivotal for my becoming a

scientist. She was a researcher before becoming a teacher, which is highly unusual in Chile. She always taught biology in a unique and different way that included using real experimental results and a distinctive researcher's view to answer biological questions.

I'VE HAD A BALANCE CONDITION since childhood. Fortunately, this condition is mild enough that I've never felt it impaired my daily life, though it did make me conscious of how debilitating it can be for those who have serious balance disorders. I have become even more amazed at how complex and important the hearing and balance systems are for humans and other animals.

EVENTUALLY AFTER establishing a lab at a university, I'd like to devote more of my time to teaching and outreach, including in a community setting. It is important to help people understand and appreciate the scientific advancements happening every day, even for those without a scientific background. —

Francisco Barros-Becker, Ph.D., is funded by donors to Hearing Health Foundation who designated their gifts for the most promising research. HHF sincerely thanks our community for supporting these projects that address the full range of hearing and balance science.

We need your help funding the exciting work of hearing and balance scientists. Please consider donating today to Hearing Health Foundation to support groundbreaking research. **Visit hhf.org/how-to-help.**