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Diverse glycinergic receptor subunits & retinal ganglion cell visual function

My research uses electrophysiological techniques to evaluate normal retinal function, dysfunction caused by blinding retinal diseases and the restoration of function using a variety of therapeutic strategies. We can use our understanding of normal retinal function and disease-related changes to construct optimal therapeutic strategies and evaluate how they ameliorate the effects of diseases—particularly retinitis pigmentosa, glaucoma and congenital stationary night blindness.

My work utilizes rodent disease models whose mutations mimic those found in human patients. While molecular manipulation of rodents is a fairly common approach, we have recently developed a mutant NIH miniature swine model of a common form of autosomal dominant RP (Pro23His rhodopsin mutation) in collaboration with the National Swine Resource Research Center at University of Missouri. More genetically modified mini-swine models are in the pipeline to examine other retinal diseases.