



## THE ROLE OF N-LINKED GLYCOSYLATION ON MELANOPSIN EXPRESSION AND SIGNALING FUNCTION

Adanna Ekekwe, Lee Harkless, Phyllis Robinson, Ph.D., University of Maryland, Baltimore,  
MD

Melanopsin is a visual pigment that is expressed in intrinsically photosensitive retinal ganglion cells (ipRGCs), essential for nonvisual responses to light such as circadian photoentrainment. It is unknown whether N-linked glycosylation directly impacts melanopsin signaling or expression, however, evidence suggests that glycosylated melanopsin more strongly induces FOS expression in a tissue culture system. To determine whether N-linked glycans influence melanopsin, we will examine the calcium imaging and cellular expression (western blot and immunohistochemistry) of wild-type mouse melanopsin and mutant melanopsin which will lack both N-linked glycosylated sites. Previous literature showed that N-linked glycosylation has a little effect based on light-induced FOS expression, which is a less direct measurement of melanopsin activation, then testing melanopsin signaling by measuring calcium imaging assays, which is what we will perform in my proposed experiments. Using these methods, I will determine whether the function of the N-linked glycosylation impacts melanopsin signaling or expression, and compare this to previously published data.