New Tool for Retinal Degeneration Research

Henry Klassen
Gavin Herbert Eye Institute, University of California-Irvine, Irvine, California; hklassen@uci.edu

The Ross et al.\textsuperscript{1} paper describes the creation of an inbred, transgenic mini-pig that carries a mutant human rhodopsin gene which is expressed in the retina and is associated with progressive loss of light-evoked ERG responses. This is a significant achievement of considerable practical value in an era in which translational activity for retinal diseases is burgeoning. The rationale for generating this pig is laid out well, and the design appears to have multiple advantages over the existing retinal dystrophic pig. There are many rodent models of retinitis pigmentosa (RP) and conditions resembling RP, but what has been lacking is a large animal model that more accurately mimics the situations encountered when treating human patients. One potential animal model is the pig. There is an existing pig model of RD; however, a number of factors have made this model difficult to use, including the large size of the animals at the time of degeneration as well as molecular genetic considerations. Ross et al.\textsuperscript{1} describe the successful development of a genetically accurate RP-like condition in a mini-pig.

This model should prove quite valuable to people working on treatment of RD, including traditional pharmacologic approaches and regenerative strategies, such as stem cell transplantation. The authors evaluated six transgenic founders whose retinal function was studied with full-field electroretinography from three months through two years. Progeny from one founder were generated and genotyped to determine the transgene inheritance pattern. Retinal mRNA was isolated and the ratio of P23H to wild-type pig RHO measured. The result is a powerful new tool for retinal degeneration research that should be of interest to a wide range of workers in that field.

References