Introducing Andy J. Fisher, the 2011 Recipient of the Cogan Award

Andy Fischer received his PhD from the University of Calgary in 1998. In his thesis research with William Stell, Dr. Fischer made several important contributions to the field of ocular growth in a chick model of myopia. One of the key findings of this work was to show that the glucagon-containing amacrine cells respond to the direction of changes in focus, providing a mechanism for the directionality of ocular growth with defocus. For his postdoctoral studies, his main research focus was to study the response of the posthatch chick retina to neurotoxic damage. Before his studies, it was widely thought that retinal regeneration was only found in lower vertebrates, such as frogs and fish. While a postdoctoral fellow in my laboratory, Dr. Fischer discovered that posthatch chickens also have the potential to generate new neurons after neurotoxic lesions. This work was published in *Nature Neuroscience* in 2001. The finding had a highly significant impact on the field of retinal regeneration, motivating investigators who study lower vertebrates, as well as those investigating mammalian retinal response to injury.

As a result, in the years after the publication of the report, it was demonstrated that zebrafish also regenerate retinal neurons from the Müller glia, whereas, before this time, it was thought that either a cryptic stem cell or the rod progenitor was the source of the regenerating retina. In addition, Dr. Fischer’s finding in the chick led to several investigations of the potential for Müller glia to serve as a source of new neurons in the mammalian retina. This has become an active field of investigation, with many laboratories now demonstrating that a limited amount of regeneration from Müller glia can occur in the mammalian retina as well, and there have been more than 150 citations of this publication.

In addition to his key discovery of regenerative potential of Müller glia, as a postdoctoral candidate Dr. Fischer discovered persistent neuronal progenitors or stem cells at the margin of the chicken eye in vivo. This work also challenged the dogma that such progenitors exist only in the retina of lower vertebrates. Since starting his own laboratory, he has continued to develop innovative methods and make novel discoveries in the links between retinal stem cells and progenitors and the regulation of ocular growth. His recent finding that a specialized class of neurons in the chick eye regulate the growth of the eye in response to changes in retinal activity tie together his interests in retinal stem cells and ocular growth and provide insight into the mechanisms of myopia. He is a prolific author and scholar, with nearly 50 publications since 1996.

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