

6th Global Ophthalmologists Annual Meeting

May 16-18, 2016 Osaka, Japan

Protecting the developing retina in retinopathy of prematurity

Amy C Y Lo, Zhongjie Fu and Sookja Chung
The University of Hong Kong, Hong Kong

Retinopathy of prematurity (ROP) is a major ocular disorder of the pre-term neonates with unsatisfactory treatment. In ROP, uncontrolled neovascularization happens and may protrude into vitreous cavity, leading to lipid exudates and bleeding, which can impair vision severely. Both clinical and basic research supports the role of oxidative stress in ROP. Using a murine oxygen-induced retinopathy (OIR) model, the animal model for ROP, we showed that genetic deletion of aldose reductase (AR), the first enzyme in the polyol pathway that uses NAD(P)H as a cofactor for glucose metabolism, is beneficial in protecting the neonatal retina in OIR. AR-deficient retinæ displayed smaller central retinal vaso-obliterated area, less neovascularization and reduced blood vessel leakage after OIR. The attenuated amplitudes and delayed implicit time of a-wave, b-wave and oscillatory potentials recorded in electroretinogram were recovered in these retinæ. There were also less morphological change in horizontal, rod bipolar and amacrine cells. Taken together, AR deficiency reduced retinal vascular changes and preserved retinal neuronal function in the mouse model of OIR, suggesting a therapeutic potential of AR inhibition in ROP treatment with beneficial effects on both retinal vessels and neurons.

Biography

Amy C Y Lo obtained her Bachelor Degree (Distinction) in Chemistry from the University of Hawaii at Manoa and continued her education in the Johns Hopkins University School of Medicine, where she received her Doctoral degree from the Department of Neuroscience. She then joined the Institute of Molecular Biology in The University of Hong Kong as a Postdoctoral Fellow and later joined the Eye Institute (Department of Ophthalmology) as Assistant Professor. Her main research interest is neuroprotection in human diseases such as stroke and retinal diseases, focusing on the investigation of mechanisms controlling neuronal degeneration using experimental animal models and on the development of new molecular and cellular therapeutic approaches.

amylo@hku.hk

Notes: