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COX2 inhibition decreases ischemic damage to rat retina–function or structure

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Extensive ischemia results in massive (≥80%) death of ganglion cells (GC) and a virtually complete loss of function as judged by b-wave disappearance in ERG. Hence this type of protocol is suited only to study the prevention of ischemic damage, but not post-insult treatment and effects on the extent and kinetics of recovery. We, therefore, studied the effects of COX species inhibition on mild ischemic damage (30% decrease in GC). Selective COX1 inhibition had no effect, while selective COX2 inhibitor, Vioxx, markedly improved retinal function (ERG b-wave amplitude) recovery after initial damage. Although GC number was also affected by Vioxx, the effect was not statistically significant at this low level of damage. Vioxx also potentiated ischemic induction of HSP70. Our results strongly suggest the involvement of COX2 (possibly via inhibition of HSP70 induction) in the mechanism of retinal ischemic damage. Moreover, we propose that studies of neuro-protection at low level damage should use functional assays, such as ERG or behavioral measurements, to follow the efficacy of the treatment.

Biography

Yoram Oron has completed his PhD from the Hebrew University, Jerusalem and Post-doctoral studies from University of Virginia, School of Medicine. He is currently Professor Emeritus of Pharmacology at the Sackler Faculty of Medicine, Tel Aviv University and the Chief Scientific Officer of two drug startup companies. He has published more than 110 papers in reputed journals and has been serving as a Reviewer in a number of reputed journals.

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