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Mechanism of *Eaf2* gene regulating microRNA in inhibiting the genesis of cataract

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Objective: To explore the expression of microRNA in *Eaf2* knockout mouse and the effect of *Eaf2* on both human lens epithelial cell apoptosis and the expression of microRNA in lens.

Methods: pEGFP-C1-*Eaf2* was transfected into SRA01/04 cells using Lipofectamine 2000 to over express the expression of *Eaf2* gene, and then flow cytometry was used to detect cell apoptosis rate. While real time q-PCR was used to measure the expression of microRNA both in human lens epithelial cell and *Eaf2* knockout mouse.

Results: Compared with controls, the apoptosis rate of cells transfected with pEGFP-C1-*Eaf2* was reduced. The expression of miR-125b and let-7a was significantly increased, whereas miR-204 was decreased in cells transfected with pEGFP-C1-*Eaf2*. The expression of miR-125b and let-7a was lower, while miR-204 was higher in *Eaf2* knockout mouse. Each result was statistically significant ($P < 0.01$).

Conclusion: *Eaf2* might inhibit human lens epithelial cell apoptosis via regulating the expression of microRNA. *Eaf2* may have a protective effect of the lens in the genesis of cataract.

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The analysis of 582 Shenzhen eye bank corneal donors

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Purpose: To investigate the characteristics of corneal donors to Shenzhen Eye Bank during a 14-year period (2000-2014) discuss some strategies about improving corneal donation rate at the present stage in China.

Methods: Retrospective analysis of Shenzhen Eye Bank records from Feb 2000 to Feb 2014.

Results: Among corneal donors, male (58%) is slightly more than female (42%) and the age span from 11 days to 95 years. The highest proportion being in 41-50 years age category and the most common cause of death was malignant tumor (54%). The donation corneas of Shenzhen local and other provinces has increased step by step then tends to stable situation. The main donation approach is based on the coordinators. Mean "death to enucleation time" and "preservation time" was 4.6 and 42.2 hours respectively. Using Optisol GS® media can significantly extend the preservation time.

Conclusions: In 14 years period, there was an increasing trend of donated corneas provided by Shenzhen Eye Bank. That was depended on the establishment of the organ donation coordinator and cooperating with the Shenzhen Red Cross, charities and foreign exchanges. Therefore, Shenzhen corneal donation model follows: The legislation first, media coordination, multilateral cooperation, more channels opened and national mobilization. This also is the effective path to improve cornea donation rate and get more donor corneas in present stage of China.

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