00557 Genetic Expression of ST18 and PCMTD1 in Lens Capsules Across the Angle Closure Disease Spectrum

Lim Xian Hui[1], *Monisha Nongpiur*[2], *Eranga Vithana2*, *Tina Wong*[1], *Aung Tin*[1]

[1]Singapore National Eye Centre, [2]Singapore Eye Research Institute

Aims: The pathogenesis of primary angle closure glaucoma (PACG) is complex with multiple contributory factors. rs1015213 located between PCMTD1 and ST18 on chromosome 8q is one of the genetic loci associated with PACG that is also associated with shallow anterior chamber depth, a risk factor for angle closure disease. In this study, we aimed to evaluate the expression levels of PCMTD1 and ST18 in the lens capsules of eyes across the primary angle closure disease spectrum (primary angle closure suspect (PACS), primary angle closure (PAC) and PACG), to provide insight into the likely mechanisms associated with the disease.

Methodology: Lens capsules were obtained during elective phacoemulsification or combined phacoemulsification and trabeculectomy surgeries from 10 cataract only patients (controls) and 40 angle closure subjects (including 14 PACS, 14 PAC and 12 PACG). Relative mRNA expression was analysed with real time polymerase chain reaction. Values from the cataract control subjects were applied as a baseline for fold changes in PCMTD1 and ST18 gene expression.

Result: Our analysis revealed a reduced expression of PCMTD1 in PACG eyes as compared to control lens capsules (expression fold change (EFC) 0.61±0.27 vs 1.10±0.70, p=0.046). However, no significant differences were noted between controls and PACS (p=0.29) and PAC (p=0.78). In contrast, the expression of ST18 was marginally greater in PACG eyes than in cataract only eyes (EFC 1.32±0.68 vs 1.10±0.53) although the difference was not significant (p=0.50). Likewise, no significant differences were noted between the controls and PACS (p=0.75) and PAC (p=0.39) for the expression of ST18.

Conclusion: The function of PCMTD1 in PACG eyes is yet unknown. The reduced expression of its protein in lens capsules demonstrated in this study supports the need for a detailed analysis of the resultant functional consequences.