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Preface

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Open angle glaucoma (OAG) is a family of glaucomas that are differentiated by clinical features usually apparent at the slit lamp. Primary open angle glaucoma (POAG) is one of the most commonly diagnosed types of glaucoma but POAG is a diagnosis of exclusion. A diagnosis of POAG presumes that no secondary form of glaucoma has been identified i.e. pseudoexfoliation glaucoma, pigmentary glaucoma, neovascular glaucoma, or iridocorneal glaucoma. Pseudoexfoliation glaucoma is the most commonly identified secondary OAG in the world. Pseudoexfoliation glaucoma is diagnosed by the presence of a characteristic white dandruff-like material in the anterior segment in the anterior chamber in the eye. Since the formal description of pseudoexfoliation by Lindberg almost a hundred years ago, the composition of the pseudoexfoliation material and how pseudoexfoliation material causes glaucoma is still not well known.

This issue of International Ophthalmology Clinics focuses on new genetic and proteomic discoveries and recent insights into the risk factors and pathophysiology of how pseudoexfoliation glaucoma develops. Genetic polymorphisms in the lysyl oxidase-like 1 (LOXL1) gene were identified to be associated with the development of pseudoexfoliation through genomic screening. In addition to recent advances in proteomics, the identity of the protein molecules that constitute the macromolecular complex known as pseudoexfoliation material is slowly being made known. These recent genomic and proteomic discoveries are leading the way to making pseudoexfoliation one of the best characterized of the glaucomas in a relatively short period of time.

Exciting new epidemiological studies that are guided by gene and environment interaction discoveries are providing new insight into the pathogenesis of pseudoexfoliation and giving an entirely new dimension to our understanding of glaucoma. The most current and thoughtful analyses of gene-environment interactions regarding pseudoexfoliation and its risk factors for development of glaucoma are presented in this issue. Interestingly, pseudoexfoliation material in the eye is associated with pseudoexfoliation material throughout the body. However, the eye is the only location in the body where pseudoexfoliation definitively causes a disease – glaucoma. This issue also reviews the most current knowledge of how pseudoexfoliation is molecularly a systemic disease but also whether or not it is also a clinically systemic disease.

Lastly, this issue reviews current thoughts and approaches regarding the medical and surgical management of pseudoexfoliation glaucoma. The treatment of POAG is the model for the treatment of pseudoexfoliation glaucoma. However, the clinical course and pathophysiology of pseudoexfoliation glaucoma varies from POAG and these important

differences have been carefully identified through reviews of the POAG and pseudoexfoliation literature and presented here. In addition to the surgical management of pseudoexfoliation glaucoma, the bane of the cataract surgeon is the pseudoexfoliation cataract, which has a well-recognized risk for significant complications during and after cataract surgery. Important observations and advice to aid the cataract surgeon anticipate and mitigate possible problems operating on pseudoexfoliation cataracts is also reviewed.

One of the major mysteries with age-related diseases is why time is a factor for disease to become evident i.e. what is the trigger than causes a disease to manifest itself. For diseases like pseudoexfoliation, which has a known genetic basis, why doesn't the disease develop at birth and why is it that not all individuals with pseudoexfoliation material in the eye develop glaucoma? Why is pseudoexfoliation glaucoma a more difficult to treat and more aggressive form of glaucoma compared to POAG, when pseudoexfoliation glaucoma becomes manifest? These are among the questions regarding pseudoexfoliation that this issue of International Ophthalmology Clinics seeks to provoke as one reads each of the articles in this issue focused on pseudoexfoliation and gains insight into the molecular and clinical pathogenesis and the clinical management of pseudoexfoliation.

Taken together, this issue of International Ophthalmology Clinics reviews the most current molecular and clinical discoveries regarding pseudoexfoliation glaucoma, which in a short period of time has become one of the best characterized of the glaucomas. This brings hope that pseudoexfoliation may become the first glaucoma to be treated or even possibly cured through greater understanding discoveries of its molecular and clinical pathophysiology.