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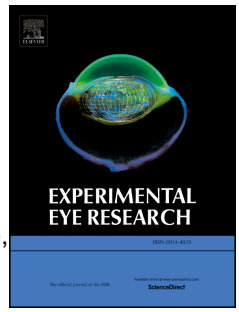

Special issue on meibomian glands

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EDITORIAL
SPECIAL ISSUE ON MEIBOMIAN GLANDS

The meibomian gland is a modified, lipid-secreting, specialized sebaceous gland without hair, which plays a critical role in the maintenance and homeostasis of the ocular surface. Meibomian glands are located in the tarsal tissue of the eyelid and consist of lipid synthesizing acinar cells connected to excretory ducts terminating at an orifice on the eyelid margin. Meibum lipid forms the outer layer of the tear film and helps prevent excessive evaporation of the aqueous tears, which may cause ocular surface inflammation, visual disturbances and a dry eye syndrome.

To better understand meibomian gland function and dysfunction, an ICER satellite meeting on the *Pathobiology of Meibomian Gland*, was held in Wakayama Medical University, Wakayama, Japan, on September 24th – 25th, 2016. Scientists from Japan, Korea, China, Germany, Brazil and the United States gathered to discuss the latest research on meibum lipid characterization, meibomian gland cell biology and morphogenesis, as well as clinical meibomian gland dysfunction (MGD). This Special Issue of Experimental Eye Research contains selected review articles based on talks from this meeting as well as contributions from additional invitees.

These papers first discuss findings that the process of meibum production, or meibogeneisis, involves a complex machinery of enzymatic reactions in meibocytes (Butovich 2017) and that the distribution of meibum in the tear depends not only on its volume, but also its nature as a complex mixture of lipids of various classes (Georgiev et al. 2017). Moreover, proteins are also a significant component of meibum as a result of holocrine differentiation of the acinar cells and that the biochemical composition of meibum is different from that of sebum, another holocrine secretory product (Jeyalatha et al. 2017).

Basic science studies employing histology/immunohistochemistry, cell culture of established meibomian gland cell lines and phenotypic analysis of mutant mouse lines also have provided new insights into the cellular mechanisms of meibomian gland differentiation with implications on the pathogenesis of MGD (Hwang et al. 2017; Hampel et al. 2017; Argueso 2017). Developmental processes also have been studied showing that the morphogenesis of the meibomian gland is modulated by a set of growth factors, i. e., fibroblast growth factor-10 or EGF receptor pathways, and biological mediators such as peroxisome proliferator-activated