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Citation on the research work

Ms. Iswarya has done the culture characterization of trabecular meshwork TM cells in different medium to identify the optimal medium with better ability to maintain stemness. Further by transplanting TM stem cells (TMSC) in a cell loss human organ culture of anterior segment (HOCAS) model she has demonstrated that TMSCs has the ability to reduce intraocular pressure. In continuation to that, with the demonstration of mesenchymal stem cell (MSC) derived exosomes as equivalent to cultured MSCs by others, Ms. Iswarya started her Ph.D. work to evaluate the efficacy of TM stem cell-derived exosomes as an alternative for cell-based therapy for glaucoma. She has isolated and characterized exosomes from TM and TMSC conditioned medium. Functionally, she has demonstrated that the TMSC exosomes have better efficacy in TM regeneration by *in vitro* wound healing assay and anti-oxidant potential by creating chronic oxidative stress in TM cells with hydrogen peroxide followed by exosome treatment. Proteomic analysis also confirmed the up regulation of corresponding proteins in TMSC exosomes compared to TM exosomes. Thus she has now established "a proof of concept" for developing a TMSC exosome based therapy for patients with primary open angle glaucoma.

Signature of the supervisor

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