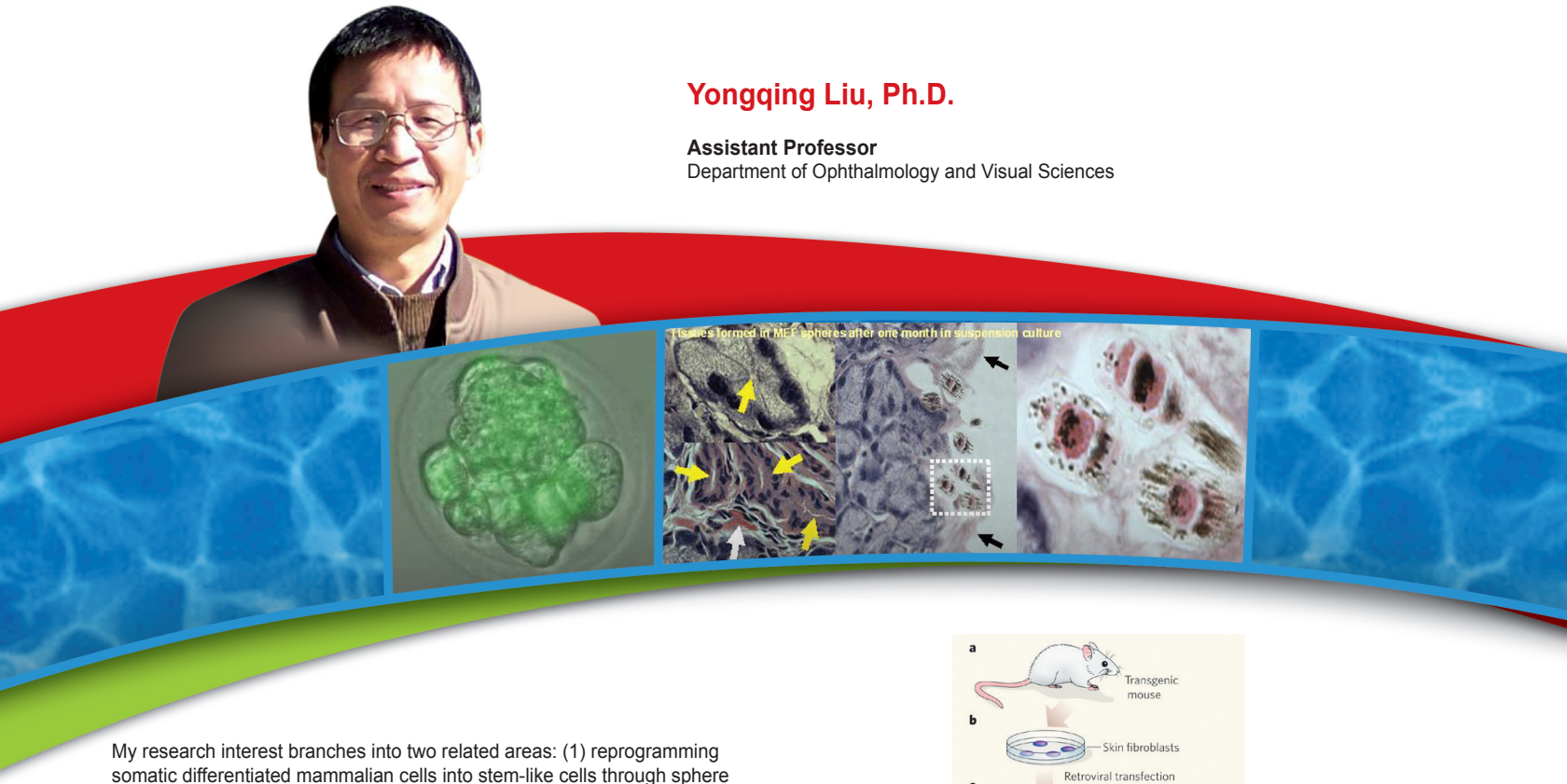

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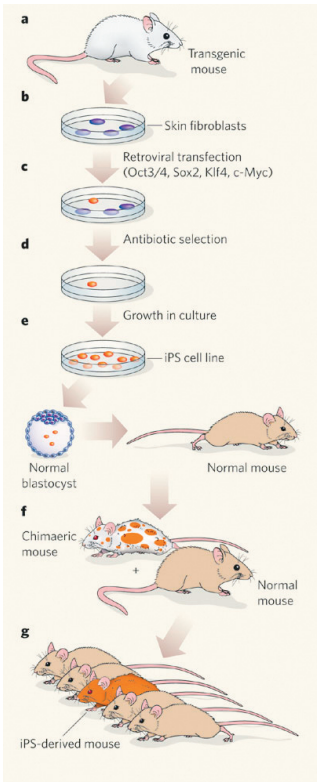
My research interest branches into two related areas: (1) reprogramming somatic differentiated mammalian cells into stem-like cells through sphere formation in vitro, and re-directing them to specific differentiation for tissue regeneration in vivo; (2) analyzing the effects of epithelial-to-mesenchymal transition (EMT) transcription factor Zeb1 on transition of fibroblasts to sphere-derived stem-like cells (SDSC).

Tissue damages or functional disorders due to trauma, aging, and inheritable diseases like retinitis pigmentosa (RP), and age-related macular degeneration (AMD), are difficult to treat. More and more hope now relies on advances in regenerative medicine in which stem cell application is part of the solution. Recently, we have developed a novel protocol for reprogramming fibroblasts to immortal multipotential adult stem-like cells. This reprogramming pathway involves sequential mesenchymal-to-epithelial transition (MET), hypoxic induction of Aid and in turn Oct4 and Dnmt1-dependent silencing of cdk inhibitors and Arf to cause immortalization. We are hoping that application of SDSC that are not tumorigenic in vivo though immortal in vitro will facilitate patient-specific cell therapies in the clinic.



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