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Research Activities:

My researches aim to investigate the function roles of three crossly-related receptor tyrosine kinases, Tyro3, Axl, MerTK (TAM), particularly the functions of the MerTK in regulation of the retinal pigmental epithelial (RPE) cell for phagocytic clearance of the spent photoreceptor out segments. MerTK null mutation causes human retinitis pigmentosa (RP), a group of inherited retinal degenerative diseases with a worldwide prevalence of 1:3500, and eventually leads to complete blindness. Our goal aims to elucidate the molecular mechanism of the MerTK regulation on RPE phagocytosis through studies of the MerTK regulated candidate genes that may in turn affect RPE function or through investigations of the MerTK-mediated signal transduction pathways that subsequently regulate cytoskeletal rearrangement during process of the phagocytosis. With progresses of our studies, we expect to gain new knowledge and understanding of the RPE function, which will allow us to develop and implement new therapies for treatment of RP caused by RPE dysfunction.

Grants Funded:

Role: Principal Investigator

Title: MerTK regulation of the PTTG and RPE phagocytosis

Funding Agency: NIH/NEI

Direct Costs Funded: \$1,250,000

Peer-reviewed Publications:

Wang H, Chen S, Chen Y, Wang H, Wu H, Tang H, Xiong W, Ma J, Ge Y, **Lu Q**, Han D. The role of Tyro 3 subfamily receptors in the regulation of hemostasis and megakaryocytopoiesis. *Haematologica*. 92:643-650 (2007).

Xiong W, Chen Y, Wang H, Wu H, **Lu Q**, Han D. Gas6 and the Tyro 3 receptor tyrosine kinase subfamily regulate the phagocytic function of Sertoli cells. *Reproduction* 135:77-87 (2008).

