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Mitochondria- An important target for cancer therapy

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Mitochondria are the cellular powerhouses. Mitochondria contain their own genome (mtDNA), which encodes a number of proteins critical for energy metabolism, particularly in oxidative phosphorylation. They are also the major source of generating reactive oxygen species (ROS). Extensive crosstalk between the mitochondria and the nucleus known as *mitochondrial retrograde regulation* (MRR), also influences many cellular and organismal activities, including cancer development and progression. MRR is triggered by mitochondrial dysfunction and it responds in a continuous manner to the changing metabolic needs of the cell. Several recent high-impact publications re-confirmed the significance of mitochondria in cancer progression and suggested increased *mitochondrial apoptotic priming* is the basis for differential clinical response in different types of cancers. Most of the conventional chemotherapeutic agents, the current clinical standard for TN BCa treatment, generally kill cells by activating mitochondrial apoptosis. Thus, understanding MRR and mitochondria mediated oncogenic signature will be critical in understanding the currently limited known etiology and treatment resistance of certain cancers.

Biography

Benny Abraham Kaipparettu is currently an Assistant Professor in the Department of Molecular and Human Genetics, at Baylor College of Medicine. His research focuses on the mitochondria-nuclear cross talk in tumor progression. His lab also focused on nanoparticle based cancer cell bioimaging and three-dimensional cellular models. His publication was one of the pioneering study to show the clinical significance of breast cancer stem cells in distant metastasis. He has also published an interesting article showing egg white as an economic alternative for three-dimentional cell culture. He has received several awards and published several research papers and reviews in reputed journals. He is currently serving as editorial board member of different research publications

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