“Mipigenetic mechanisms underlying cancer metabolism”

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Reception: 11:00 AM

Abstract:

We have defined “mipigenetic” mechanism as mitochondrial-nuclear retrograde cross talk at the epigenetic and genetic levels. Our studies suggest that mitochondria function as epigenetic regulators as well as mutators of the nuclear genome. We propose that mitochondrial dysfunction induced global epigenetic and genetic changes in the nucleus play key roles in complex genotype and phenotype variations observed in mitochondrial diseases and host of other complex human diseases including cancer. I will also discuss the tumor promoting function of mitochondrial uncoupling protein UCP2 in breast cancer. In summary, our studies demonstrate that mitochondria induced “mipigenetic” mayhem in the cell nucleus underlie pathogenesis of complex multisystem mitochondrial diseases including cancer.

Biography:

Keshav K. Singh is one of the global leaders in the field of mitochondria research and medicine. He is the Joy and Bill Harbert Endowed Chair, Professor of Genetics, Pathology and Environmental Health and the Director of the Cancer Genetics Program at the University of Alabama at Birmingham (UAB). Keshav K. Singh is also the founding editor-in-chief of the journal Mitochondrion., founder of the Mitochondria Research and Medicine Society (USA) and the Society for Mitochondrial Research and Medicine (India). He is the author of more than 100 research publications and 3 books related to mitochondrial diseases, aging and cancer. He coined the terms "mystondria" or "mystopia" to explain the mysterious diseases of mitochondria and "mipigenetics" to explain the mito-nuclear epigenetic mechanisms underlying mitochondrial diseases.