

Grand Rounds

Susan Samueli Integrative Health Institute

Mitochondrial Genetics and Energetics and the Enigma of Traditional Eastern Medicine

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Noon—1:00 PM

Live—UC Irvine Campus
Medical Education Colloquium
Bldg. 836, 3rd Floor, Rm 3070

Life is the interplay between structure (anatomy), energy (vital force) and information. Western medicine is grounded in anatomy while eastern medicine is grounded in Qi (vital force). To achieve a holistic view of medicine, we need to know the anatomical basis of Qi. The mitochondria generate 90% of our energy. Hence, the mitochondria must be the source of Qi. The mitochondria generate energy by oxidative phosphorylation (OXPHOS) and the mitochondrial genome consists of one to two thousand nuclear DNA (nDNA) genes plus hundreds to thousands of copies of the maternally-inherited mitochondrial DNA (mtDNA). The mtDNA codes for the most important OXPHOS genes so the mtDNA is the wiring diagram of the mitochondrial power plants.

Over the past thirty years hundreds of pathogenic mutations have been identified in the mtDNA, ancient mtDNA polymorphisms found to predispose to an array of common diseases, and mtDNA mutations shown to accumulate with age providing the aging clock. The clinical phenotypes associated with mtDNA variation encompass all of the manifestations of the common metabolic and degenerative diseases as well as aging. Therefore, the mitochondrion must generate Qi and by modulating Qi Eastern medicine must be manipulating the mitochondria.

Please RSVP to Kelly Brennan at kellylb@uci.edu



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