

AYURGENOMICS: A NEW APPROACH IN PERSONALIZED AND PREVENTIVE MEDICINE

MITALI MUKERJI¹ AND BHAVANA PRASHER²

Genomics has ushered in an era of predictive, preventive and personalized medicine wherein it is hoped that not too far in the future there would be a paradigm shift in the practice of medicine from a generalized symptomatic approach to an individualized approach based on his or her genetic makeup. Several approaches are being attempted to identify genetic variations that are responsible for susceptibility to diseases and differential response to drugs, however, have met with only a limited success. Ayurveda, an ancient Indian system of medicine documented and practiced in India since 1500 B.C has personalized approach towards management of health and disease. According to this system, every individual is born with his or her own basic constitution, termed Prakriti which to a great extent determines inter individual variability in susceptibility to diseases and response to external environment, diet and drugs. This system is in contrast to contemporary medicine, where a preventive and curative regime can be adopted only after an individual suffers or shows signs of an impending illness and there are no methods to identify healthy individuals who would be differently susceptible to disease. We thought an integration of Ayurveda and genomics if attempted in a systematic manner which we call as Ayurgenomics could help fill the gap. In an exploratory study we have provided evidence that healthy individuals of contrasting Prakriti types i.e. Vata, Pitta and Kapha identified on the basis of Ayurveda exhibit striking differences at the biochemical and genome-wide gene expression level. Subsequently, we could also demonstrate that these differences are meaningful since we could follow one of the cues from gene expression differences and identify a genetic marker that is associated high altitude adaptation and a high altitude illness. Our studies have provided a novel molecular framework for integration of these two disciplines for predictive and personalized medicine.
