

MICROARRAY OF GENES AND PROTEINS: DISCOVERY TOOLS FOR DIAGNOSIS AND THERAPY FROM PHARMACOGENOMICS FOR THE PRACTICE OF PERSONALIZED MEDICINE

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In spite of enormous complexity of genetic circuits and dynamic signaling pathways of multiple proteins in the trillions of cells in the human body, this fragile functional machine does not get enough respect for what it does and how meticulously, continuously and quietly it works hard to salvage us from a few self-inflicted wounds of smoking, alcohol abuse and a few other unavoidable issues of environmental exposure to polluted air and water and inadequate habitats and lack of nutrition, hygiene and knowledge of selfcare. The bold approach of using Systems Biology for this human machine may give us a powerful handle to know and deal with the weaker links at an early stage before the deadly diseases may strike and make it dysfunctional, painful, and irreversibly unrepairable in spite of exorbitant enormous healthcare cost of trillions of dollars. The microarrays of genes, messenger ribonucleic acids and proteins along with the computational tools give us a snapshot of this fragile network of gears, switches and feed-forward and feed-backward loops active in the early development, growth, maintenance, loss of control and degeneration in the late phase of life. As the cost of sequencing and related technologies is going down, the studies of comparative genomics and small gene-variants from race, religion, gender and color, are showing us how close we are to each other and other species of lives in this planet and how we should learn and live a quality life of creativity and tolerance and pass on the baton to the next generation with pride and dignity. I took a small step to cover some of these novel tools and technologies that may make us aware of our own biology and its medical implications and place us on a responsible driver's seat to practice the personalized medicine at every corner of this global village.
