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Special Issue on

Pharmacogenomics: Recent Advances in Precision Medicine

CALL FOR PAPERS

The inherent genetic variations and complex and varied mechanisms involved in diseases pathogenesis pose a great challenge to the effective management of disease and therefore, there is strong need to predict, uncover, and monitor the pathways of drug response at individuals and population levels. The completion of ENCODE and Human Genome Project broadens our functional understanding of molecular pathways that might influence the therapy and drug response which lead to the development of personalized medicine. Efforts to determine how human genetic variation affects an individual's response to drugs emerges the concept of precision medicine which hold promise to determine unique individual's molecular characteristics and reduce the possible drug adverse reactions.

Understanding the clinically relevant genotype-phenotype interactions influencing the drug response of an individual is one of the major challenges of precision medicine. With the availability of myriad of genetic variations in human genome across various racial groups, the biggest challenges for researchers are to indentify the major functional variants involved in drug response, correctly interpret association with disease pathogenesis, and develop *in silico* prediction tools and *in vitro* test systems to clinically correlate the relationships amongst genotype and drug response of individuals. Despite significant knowledge of genetic variations affecting disease processes, the efficacy of medicines prescribed for cancers is only 20% and about 50-60% for common diseases. Further challenges in path from bench to bedside of precision medicine involve complexities associated with regulatory affairs, ethical issues, and influence of numerous nongenetic environmental factors including sex, age, diet, lifestyle, and intestinal microflora of individuals.

Therefore, this special issue aims to bring multidisciplinary researchers together to present innovative research about the recent advances in precision medicine, current challenges, and future potential and promise of personalized medicine. We invite the scientific community to submit their research reports related to the exploitation of genetic information from various genomic databases including 1000 genome project, HapMap project, GWAS database, and PharmGKB to create the genotype frequency map for relevant variants affecting drug metabolism and thus guide the prediction of drug response at individual and population levels. The research articles and reviews reporting complete investigation or proof of concepts in the wide area of precision medicine are welcome.

Potential topics include but are not limited to the following:

- Systems biology and bioinformatic approaches to predict drug response
- Emerging technologies for accessing and exploiting genomic information
- Genomics variants and human diseases
- Translational genomics in human health and disease process
- Disease gene finding based on biological pathways and networks
- Genomics analysis for the prediction of drug metabolism, side effects, and toxicity
- Precision medicine in cancer therapy, cardiovascular diseases, and autoimmune diseases
- Ethics and regulation of pharmacogenomic testing
- Integrated analysis of genomics data to address pharmacogenetics aspects of a drug

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/scientifica/genomics/rapm/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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