

Editorial Note on Molecular Genetics and Genomic Medicine

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Editorial

Molecular genetics is a sub-field of biology which addresses how differences in the structure or expression of DNA molecules manifest as variation among organisms. Molecular genetics determines the structure and function of genes in an organism's genome using genetic screens. The term molecular genetics refers to a fundamental theory alleging that genes direct all life processes through the production of polypeptides, gene expression and regulation of genes at the molecular level and sometimes to an investigative approach applied throughout biomedical science which is based on investigative strategies in the basic theory about genes.

Genomic medicine is an emerging medical discipline which involves using genomic information about an individual as part of their clinical care and the health outcomes and policy implications of that clinical use. Genomic medicine is the study of our genes and their interaction with our health. Genomics investigates how a person's biological information can be used to improve their clinical care and health outcomes. Genomic medicine is an evolving study of genetic mutation pathways and their variations is particularly exciting. There are some hereditary diseases which are difficult to diagnose simply because

of the wide range of genes involved. Genomic medicine is advancing quickly, so rapidly some health care providers lack understanding of the legal, ethical and social implications which can affect how they practice medicine and share information with their patients in the future.

Genomic medicine has considerable potential to provide novel diagnostic and therapeutic solutions for patients who suffer with molecularly complex diseases and who are not responding to existing therapies. To bridge the gap between genomic medicine and clinical practice, integration of various data types, resources, and joint international initiatives will be required.

Scientists are working towards finding a chemical or genetic bottleneck for conditions like these. The ability to switch off a vital reaction along the pathway from genetic trigger to dust allergy, or asthma would aid diagnosis and treatment. Most diseases involve multiple pathogenic mechanisms which are dispersed in multiple cell types, which may require combinatorial treatments. The huge economic, medical problems arising from the large number of patients who do not respond to therapy emphasize the need for novel diagnostic and therapeutic solutions for the management of patients. Genomic medicine has considerable potential which also presents significant challenges which are likely to be addressed by the joint international initiatives.

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