Preface of the Special Issue

India is a democratic nation with a diverse ethnic population since there may be ethnic disparities in the effects of nuclear and mitochondrial DNA alterations. There are 40-82 genetic disorders for every 1000 live births in India. To better understand the functions of gene expression, gene regulation, development, and biological mechanisms underlying in a typical human physiology will be aided by the inheritance and population studies. One of the most noteworthy sectors that can significantly develop and improve human health is genetics. Recently, a potent paradigm for the future generation of healthcare is the development of artificial intelligence (AI) technologies along with medicine. Another potent field is the use of nanotechnology in medicine. Because of advancements in molecular genetics and genomics during the past three decades, the pathophysiology and causal genes for many genetic diseases have been discovered. More research is necessary to confirm the use of genetic variants as a potential biomarker for the diagnosis of various diseases.

Genome-wide association analysis has helped discover the genes that are predisposed to multifactorial genetic diseases which will be helpful for future therapeutic strategies. The combination of biomedicine, imaging methods, and nanotechnology has also achieved astounding results in a variety of sectors and is now used in clinical practise in fields like drug delivery. The use of nanomaterials in biomedicine has also evolved fusion ideas of diagnostic and treatment resulting in theranostics. Apart from these advancements, use of AI frameworks in clinical diagnostics facilitates the quick analysis of enormous, complex datasets. All these factors together, will definitely cover the gap in our knowledge about genetic diseases and contribute to the diagnostic and therapeutic approaches. Articles related to these fields of human genetics, nanotechnology and artificial intelligence were invited for this special issue.

Finally, we would like to express our sincere gratitude and appreciation to all the authors for their excellent contributions and to the anonymous reviewers for donating their time and expertise to assess the quality of the papers that were submitted.

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