The Saga of Health and Disease beyond the Human Genome

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Every passing decade since the unraveling of the structure of DNA has witnessed notable advances in our understanding of the information concealed therein, with implications for human health and disease. Similarly, several important areas of study have emerged after the human genome sequencing feat. Concomitant progress in genome analysis tools for genome-wide searches and next generation sequencing for whole genomes continues to contribute to this phase of discovery genomics. Identification of common or rare genetic variants, their functional analysis and systems biology approaches are improving our understanding of the etiological mechanisms underlying diseases. A few of these findings may also have the potential to be translated to diagnostic and/or therapeutic applications, which ultimately is the focus of all biomedical research. A few examples each of successes and challenges witnessed in these efforts will be presented.