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Sommario/riassunto

In 1990, scientists began working together on one of the largest biological research projects ever proposed. The project proposed to sequence the three billion nucleotides in the human genome. The Human Genome Project took 13 years and was completed in April 2003, at a cost of approximately three billion dollars. It was a major scientific achievement that forever changed the understanding of our own nature. The sequencing of the human genome was in many ways a triumph for technology as much as it was for science. From the Human Genome Project, powerful technologies have been developed (e.g., microarrays and next generation sequencing) and new branches of science have emerged (e.g., functional genomics and pharmacogenomics), paving new ways for advancing genomic research and medical applications of genomics in the 21st century. The investigations have provided new tests and drug targets, as well as insights into the basis of human development and diagnosis/treatment of cancer and several mysterious humans diseases. This genomic revolution is prompting a new era in medicine, which brings both challenges and opportunities. Parallel to the promising advances over the last decade, the study of the human genome has also revealed how complicated human biology is, and how much remains to be understood. The legacy of the understanding of our genome has just begun. To celebrate the 10th anniversary of the essential completion of the Human Genome Project, in April 2013 Genes launched this Special Issue, which highlights the recent scientific breakthroughs in human genomics, with a collection of papers written by authors who are leading experts in the field.