The New York Times

June 18, 2010

The Genome Project: A Balance Sheet

To the Editor:

"A Decade Later, Gene Map Yields Few New Cures" ("The Genome at 10" series, front page, June 13) says the "primary goal of the $3 billion Human Genome Project" is "to ferret out the genetic roots of common diseases like cancer and Alzheimer's and then generate treatments." It suggests that results have been disappointing.

This is a narrow definition of the genome project's purpose. The project provided an enormously powerful tool to study general molecular mechanisms of health and disease, not just those resulting from genetic variation. Almost every new drug target identified in the last decade was discovered using technologies that rely on a complete database of human genes.

In fact, this may be the most effective $3 billion ever spent by this country. It continues to transform our understanding of cancer, infection, aging, autoimmunity, neurological diseases and processes of healing. These insights will benefit all of us.

Americans can and should take great pride in this accomplishment.

Michael Farzan
Brookline, Mass., June 13, 2010

The writer is an associate professor of microbiology and molecular genetics at Harvard Medical School.

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To the Editor:

Mapping the human genome was not just about finding cures. It was also about understanding disease so we could provide better care.

That is now happening in spades throughout the health system. Genetic tests can identify the exact molecular nature of a patient or disease, allowing for better prevention and targeted treatment. The cure rate for childhood leukemia now exceeds 80 percent, compared with just 4 percent in the 1960s. This is a result of genetic tests that allow better timing and dosing of anticancer drugs.

Genetic tests for variations in a patient's ability to metabolize blood-thinning drugs allow more precise dosing, potentially cutting hospitalizations by a third. Similar progress in care is being made for patients with H.I.V., colon cancer, melanoma, heart disease and adult leukemia — all thanks to knowledge from mapping the human genome.

Alan Mertz
Washington, June 15, 2010

The writer is president of the American Clinical Laboratory Association.

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To the Editor:

Using the Human Genome Project data, we discovered in 2008 the virus causing most Merkel cell carcinomas, the most deadly of the skin cancers ("Virus Is Linked to a Powerful Skin Cancer," news article, Jan. 18, 2008).

Because of the Human Genome Project, we now know the cause of this cancer, and there is a clear map for its prevention and treatment. This is but one obvious example of how the project has changed medicine. Exploitation of the genome has been throttled more by the loss of scientific financing and distorted biomedical industry incentives than by a fundamental lack of medical opportunities.

Patrick S. Moore
Pittsburgh, June 13, 2010

The writer, a doctor, is the American Cancer Society professor at the University of Pittsburgh Cancer Institute and director of its cancer virology program.

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To the Editor:

Re "Awaiting the Genome Payoff" (Business Day, June 15):

The disappointment in the rate at which health benefits have resulted from the deciphering of the human genome may be self-inflicted by the scientific community.

The phrases "genetic blueprint" and "genetic road map" were often invoked. Implicit in these concepts is predictability.

Following the lines on a road map leads to arrival at a defined destination. It may be more appropriate to say the elucidation of the human genome provides a catalogue of materials and components whose assembly can lead to an enormous number of physiological possibilities.

The challenge for drug discovery is to understand the rules of assembly and how the unique physiology of each person, interacting with the environment, can modify these rules.

Melvin Schindler
Piscataway, N.J., June 15, 2010

The writer is emeritus professor of biochemistry and molecular biology, Michigan State University.