Epigenetics of Human Health

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CURRENT RESEARCH

Predicting the Health Risks Resulting from Changes in DNA methylation and Gene Expression

While our genetic code, encoded in DNA, can be helpful to understand health and disease risk, the complete picture is far more complicated. As a result, many researchers have turned to epigenetics, which is the study of the changes in DNA modifications and conformation, and how these affect gene expression. Dr. Matteo Pellegrini, of the University of California, Los Angeles, combines statistics, computer science, biology, and genetics to better understand epigenetics. Using sophisticated computational approaches, he is able to interpret genomic data and thus, develop large-scale models of transcriptional and epigenetic regulation. Dr. Pellegrini believes that with a more complete understanding of the relationship between epigenetics and disease, he and other researchers will be able to design applications that predict risk for diseases ranging from diabetes to cancer.

Dr. Pellegrini's research has been both basic and translational; some of his lab's projects are at an advanced stage with commercialization potential, while others are still at the data collection stage. The advantage of epigenetic profiling is that it can be readily determined from patient samples using the latest sequencing technology. As this technology has become more affordable and therefore, accessible, the quantity of data available to researchers has grown exponentially. Using this data, Dr. Pellegrini believes he and his team can build applications to determine the current state of patients' health and also predict disease risk. Surprisingly, the use of epigenetic profiles to predict human disease risk is still relatively untapped. Dr. Pellegrini's research is producing novel approaches to developing computational...

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AFFILIATION

University of California, Los Angeles

EDUCATION

- A.B., in Physics, 1989 , Columbia University
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RESEARCH AREAS

Diagnostics, Genomics / Congenital, Metabolic / Diabetes, Technology

FUNDING REQUEST

Your contributions will support the continued research of Dr. Matteo Pellegrini, of the University of California, Los Angeles, as he combines computer science, biology, and genetics to clearly understand the epigenetics of human health. Donations will support the necessary $100K per year required for data collection and the more affordable analysis of such data. In choosing to donate, you will play a role in determining the current state in patients and their health risks.