What’s the brave new world of big data genomics?

The Human Genome Project (HGP), the first endeavor and practice of genomics in its real sense, will further demonstrate its significance for reshaping life sciences and medicine by making life digital as a part of the “big data” era of the world. It is not difficult to predict the following in a few years:

An open-source/free-access set of genome sequences of germplasm for breeding plants and animals will be available by sequencing most, if not all, domestic cultivars and/or wild strains of these species to link the genomes and phenotypic traits, which will dramatically change the ways and efficiencies of breeding.

An integrated omics knowledge about humans will be generated by sequencing the whole genomes of at least one million individuals from most, if not all, ethnic groups, including both “normal” people and those suffering from various well-diagnosed diseases, which will lay the foundation of medicine and health care for the rest of the century: noninvasive prenatal testing as well as preimplantation testing will be applied to chromosomal-numerical-abnormal diseases and some monogenic diseases. Personalized protocols will serve patients with cancers and other complex diseases. Metagenomics will begin to enter the clinical field for many metabolic diseases. More importantly, the culture of collaboration cultivated by the HGP will spread. A balance between the principles of free access to genome sequencing data and proper protection of privacy, intellectual property rights, and society will be built. The mutual understanding of the scientific community and the public will be further harmonized.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: Where Next for Genetics and Genomics?