

VI. Genomics

It is a great challenge for scientists to decode and analyze the genomes of living cells. We now have billions of base pairs of DNA sequence data and are working on finding out: where do genes start and stop?; how are genes in different organisms related?; how do changes in the DNA sequence of specific genes lead to diseases or disorders?; how do genes work together to carry out the functions of the cell?; etc...

Possible topics include: Building the “Tree of Life” (exploring evolutionary relationships between living things); The Human Genome Project; The International HapMap Project (correlating gene changes with human trait variations across different ethnic populations); Personalized Medicine (how genes affect your health and response to medical treatments); etc...

Below, we have provided a few reputable resources to get your project started. Please do not plagiarize from these sources, but put the information in your own words. As you write the text for each section of your poster, indicate the references used in that section by using an “in text” citation (see the contest directions for more information on using references correctly). In addition to the resources provided, we encourage all contestants to seek out other scientifically reliable sources of information, media images, and artistic elements in building the Biotech Expo poster entries.

Online Resources on Genomics, Proteomics & Bioinformatics:

The Human Genome Project

http://www.ornl.gov/sci/techresources/Human_Genome/home.shtml

Microbial Genomics at the Department of Energy

<http://microbialgenomics.energy.gov/index.shtml>

The National Center for Biotechnology Information

<http://www.ncbi.nlm.nih.gov/>

National Association of Biology Teachers—Ethics Resources

<http://www.nabt.org/sites/S1/index.php?p=207>

Nova: Science Now—Artificial Life

<http://www.pbs.org/wgbh/nova/sciencenow/3214/01.html>

Nova: Science Now—Epigenetics

<http://www.pbs.org/wgbh/nova/sciencenow/3411/02.html>

Science Daily

http://www.sciencedaily.com/news/plants_animals/biotechnology/

UC Davis Plant Genomics Program

<http://pgp.ucdavis.edu/>

Note: Opinions and philosophies expressed on the above websites are not necessarily those of our program and should be viewed as part of the larger societal discussion surrounding biotechnology. Use of these specific online resources is not required.

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