SBI 3C - Positive Application of Microbes WebQuest

**Human Microbiome Project**

### Getting Personal with Bacteria

Microbes, including bacteria, inhabit your body in great numbers and impact many aspects of health and disease such as obesity and Crohn's disease. Characterizing the genetic diversity of microbes that live in specific areas of the body is key to understanding the composition and dynamics of microbial communities within individuals, in transmission between individuals, and in transmission between individuals and the environment. The ability to characterize microbial diversity and transmission has been hampered in the past by a lack of high-throughput analysis tools. New computational tools being developed through the Common Fund's Human Microbiome Project (HMP) are accelerating microbiology and biomedical research, and unexpectedly, other fields like forensics.

Dr. Rob Knight, an investigator in the HMP, is developing novel approaches to analyze human microbial communities, and recently contributed to a paper in the *Proceedings of the National Academy of Science* on the discovery of "microbial fingerprints"; in a person's skin. The skin surface harbors a large number of bacteria that are highly diverse and yet personally unique from individual to individual. The bacteria are easily dislodged from the skin and transferred to objects upon contacting. By analyzing the "microbial fingerprint"; of bacteria left on computer equipment, Dr. Knight and colleagues at the University of Colorado found that the fingerprint could be traced to a specific individual with a high degree of certainty even if the objects had not been touched for two weeks. The approach could be important in forensic investigations to provide independent confirmation of forensic results obtained using more traditional methods such as human DNA analysis or fingerprinting.

~ ***National Institute of Health http://commonfund.nih.gov/hmp/programhighlights#biome***

1. Further to this information, research further how scientists are now discovering how to use your microbial fingerprint to identify you. (will need headphones)

Visit: <http://www.npr.org/templates/story/story.php?storyId=124709981>

1. Visit UG2G0 secondary website: Research/Gale Science and type in:

## NIH Human Microbiome Project defines normal bacterial makeup of the body; Genome sequencing creates first reference data for microbes living with healthy adults

* Read through this article and highlight any information that relates directly to our discussions in class.
* Create a brief summary of the Human Microbiome Project.
* List any further questions that you may have.
* Research your questions and summarize your findings. 
* Submit your report to me in the classroom.

Happy researching!