Name:_____ Date:_____

What's Up With Your Gut Microbiome?

Observing Your Microbiota: Student Handout

While individual microbes are too small to see without a microscope, we can directly view bacterial colonies, or clumps of many individual clones of one original bacteria cell. Bacterial colonies grow on solid surfaces. In labs, bacteria are often grown in petri dishes on a medium called agar.

1. **What research question will you try to answer by cultivating bacteria from your skin? What is your prediction about what you think you will see?**

   Question:

   Prediction:

2. **What observations are you going to make and data are you going to collect to try to answer your research question? How are you going to record your data and observations?**

3. **Describe how the observations you will make and data you will collect will help you answer your research question:**

Materials

- Sterile petri dishes with agar (at least 2 per group per skin area swabbed)
- Parafilm or masking tape
- Sterile cotton swabs
- Boiled or sterile water
- Markers
- Sterile gloves

Vocabulary

- **agar:** a jelly-like substance that comes from algae that can be used as a medium to grow bacteria on
- **inoculate:** to introduce microorganisms, like bacteria, onto a surface where they can grow
- **sterile:** free from bacteria; totally clean

How to Inoculate Petri Dishes With Bacteria

- Wear sterile gloves when handling petri dishes.
- Label your petri dishes with a marker on the bottom of the dish so that you can see through the lid to make observations.
- To inoculate a petri dish, dip a sterile cotton swab in sterile water and gently push it against the side of the water container to wring out excess water. Swab an area of skin, then gently rub the swab across a large area of the agar.
- Cover the petri dish and seal it shut with Parafilm or tape, making sure not to cover the top of the dish.
- Place used cotton swabs in a zipper-lock bag.
- Be sure to make at least one Control dish, or a dish that is inoculated with a swab that did not touch any skin.
- Put petri dishes upside down in an incubator set at 35 degrees Celsius. If you don't have an incubator, you can seal the dishes in zipper-lock bags and place them upside down in a dark place that is at or just above room temperature.
- Do not open the petri dishes again once you have sealed them shut.

4. **Why do you think it is important to work with sterile gloves and sterile cotton swabs when inoculating petri dishes with bacteria from your skin? What do you think the purpose of the Control dish is?**