

Name:

## Lab 1: Culture Transfer Techniques

### Learning Objectives:

- Identify the importance of aseptic technique in the field of microbiology
- Apply the concept of aseptic technique and its importance in the field of microbiology.
- Identify different forms of basic growth media
- Transfer a pure bacterial culture from one growth media to another, a process called sub- culturing.

### Introduction:

Microorganisms are everywhere in our environment; they are in the air, the soil, on surfaces (fomites), and on and within living things. In a hospital setting, contamination of clinical samples may have an impact on the diagnosis and treatment of patients. Experimental results from pure cultures, which contain a single type of microorganism, can be skewed and produce erroneous results when contaminated with exogenous microorganisms.

Unwanted microorganisms can be introduced into samples by direct contact with contaminated surfaces or hands by touching either the growth media or the inner surfaces of the culture tube with objects that have not been sterilized. In addition, microbes in the air can enter tubes and plates of growth media by way of air currents. Thus, aseptic technique is an important concept to learn in the lab and in clinical settings.

Aseptic techniques are designed to prevent unwanted microorganisms from contaminating either sterile materials or pure cultures. If bacteria are handled correctly, only the desired organisms will grow on transfer cultures. Using proper aseptic technique, the transfer of a sample from a pure culture will allow only that specific bacterium to grow. This process is called subculturing and is used to maintain the cells as well as keep them in an active growth phase for experiments. In this lab exercise and in future experiments, it is critical to apply aseptic technique to prevent the contamination of pure cultures.

The growth and survival of microorganisms require a source of nutrients and a favorable environment. For example, bacteria that grow in the human gut may grow better at body temperature than at room temperature. While some microorganisms have very specific growth requirements, many bacteria can grow in media containing low molecular weight substances derived from powdered beef extract and