**Lab exercise. Streak Plates.**

**Safety issues**

1. Tie your hairs behind in the lab, especially when using Bunsen burners.
2. Wear gloves when handling samples with live bacteria.

**Background**

For this exercise, you will use a pure culture of *Halobacterium sp. NRC-1*. This strain is a member of the Archaea and grows in extremely salty environments (e.g., the Great Salt Lake). *Halobacterium sp. NRC-1* can develop 3 possible phenotypes:

* Vac+, or wildtype, pink colonies.
* Vac-, or red colonies. The red color is due to its caroteinoids and bacteriorhodopsin. Bacteriorhodopsin enables the cells to convert light energy to chemical energy.
* Sectored colonies. A mixture of wildtype and mutant cells.

The occurrence of mutants is due to Insertion Sequences (IS sequences), which jump to the coding sequence of genes that are involved in gas vesicle formation. Disruption of the genes lead to diminution of gas vesicles and change of color.

**Procedure**

1. Clean work space.
2. Light Bunsen burner, flame a loop.
3. Touch the side of tube or culture dishes with the loop (let it cool), then dip the loop in cell cultures.
4. First streak on plate. Flame the loop.
5. Repeat step 4 twice.
6. Label the bottom of the plate with strain, your names, and date.
7. The plate should be left upside down in the incubator.

**Clean up**

* Turn off Bursen burner. Clean work space.

**Report (Your report should be written in WORD and submitted to WebCT).**

1. Is *Halobacterium sp. NRC-1* a pathogenic strain? Why?
2. Given that it has bacteriorhodopsin, what kinds of advantages do gas vesicles provide for *Halobacterium sp. NRC-1*?