**Making microspheres Lab.**

Bio.

**Objective:** To make microspheres from amino acids and to compare their structures to living cells.

**Procedure.**

**PART I**

1. Half fill a 500 ml beaker with tap water and bring to a boil on hotplate. This will be your water bath.
2. While waiting for water to boil, add 0.5 grams each of aspartic acid, glutamic acid, and glycine to a test tube. Combine the dry powders together with a stirring rod.
3. When the water bath is boiling, carefully place the test tube of amino acids into the hot water bath. Leave for 20 minutes.
4. Measure out 5ml of 1%NaCl solution using a graduated cylinder and place it in a 50 ml beaker. At the 18 minute mark, place the beaker of 1% NaCl solution on the hot plate so that it is boiling at the same time as the amino acids are ready to be from the water bath.
5. Using tongs to handle the glassware, slowly add the 5ml of 1% NaCl solution to the test tube containing the amino acids while stirring.
6. Return the test tube to the hot water bath for 30 seconds. Remove and let cool.

**Question.** Relate the procedure and materials to the theories on origins of life. Why did we use amino acids. Why did we follow the procedure we did? What conditions are we trying to replicate?

**Part II**

Step 1. Using an eye dropper, remove some of the liquid and “sludge” from the test tube and place on a microscope slide.

Step 2. Look for microspheres.

Step 3. When you find microspheres, examine and sketch under the highest magnification you can observe them at.

Q1. How does your microsphere compare to a cell? How does it differ?

Q2. What response would you expect if you exposed your microsphere to a hypertonic solution?

Step 4. Use the wicking technique to expose your microspheres to a hypertonic solution.

Q3. How did your microsphere respond to the hypertonic solution? Compare to a cell?

**Read “The Origins Of Life. Primordial Soup Du Jour.”**

Q4. What were Darwins’ “Warm Little Ponds” and of what significance are they to our Lab?

Q5. Describe the principle of self assembly. What were the findings of American biochemist Sidney Fox that supported this theory?

Q6. Are there any other evolutionary milestones that may be partially explained by the theory of self assembly? Explain.