

LABORATORY #

BIOLOGY 241

TITLE : PREGNANCY TEST

Preparation and materials: per group of four students UCG SLIDE-TEST for chorionic gonadotropin.

This investigation requires: slides and stirring sticks, lamp, pregnant and control urine.

Prelab; carefully read the experiment and read about antigens and antibodies in an elementary textbook. Look up multivalent antibody and agglutination.

Objectives: to learn to use an immunochemical test for chorionic gonadotropin, and to distinguish a positive pregnancy test, showing CG presence in the urine.

Required tasks; prepare a labelled slide for each of the four urine samples. Shake the antigen sample, well. Make sure reagents are room temperature before use. Hold them in your hand until they are. No more than 4 tests should be set up at any one time.

Hypothesis to be tested; pregnant urine contains chorionic gonadotropin whereas non-pregnant urine does not.

Students to work in pairs and each turn in completed lab sheet at the end of the lab.

Procedures: 1. Place one drop of urine on labeled slide. 2. Add one drop of antiserum reagent to the drop of urine. Be careful not to contaminate the pipette by touching the urine with its tip. 3. Add one drop of shaken antigen reagent and mix together with the flat part of a new stirrer (don't use it over without washing it with soap. 4. Rock gently for 2 minutes and observe with a gooseneck lamp right above it at the end of that time. Check for agglutination. The beads are coated with HCG. We are adding urine which is another possible source of antigen. When there is no antigen in the urine, what would you expect to happen when you add the antigen and stir? What will happen in the case where there is antigen (hormone) in the urine that can compete with the antigen on the beads?

A positive test does not agglutinate. A negative test agglutinates by the two minutes, and you will see alternating areas of clear and opaque appearance. This is because the latex beads are coated with antigen, and can be agglutinated by the antibody when the two are mixed. However, in the presence of an outside source of the antigen, the antibody reacts with that instead of with the beads, so there is inhibition of agglutination. In a positive pregnancy test the urine contains the chorionic gonadotropin to react with the antibody to interfere with its agglutination of the antigen on the beads human chorionic gonadotropin appears in the human circulation in concentrations which can usually be detected by 30 days after the last period. This test can work as soon as five days after the day of the missed menses. If the test is negative, and there is still no menstrual period, the test can be tried again after one week. Just as the name suggests, the hormone is made by the chorion of the placenta, and normally has as its function the maintenance of the corpus luteum in the mother's ovary, taking the place of the pituitary gonadotropin. First-urination of the morning is used for the

collection, since the hormone is more concentrated in the urine at that time. Caution should be used when there is a possibility of menopause, since there is also an elevation of the hormone from the pituitary at that time which could lead to a false positive.

In this section you will determine the relationship between the variables of the experiment are 1) amount of chorionic gonadotropin ; the dependent variable is the amount of agglutination of the latex beads make sure that you vary only one condition at a time. Collect data: record it in either a table, a drawing or a graph on the next page.

NAME _____ DATE _____

ANSWER SHEET FOR INVESTIGATION # _____ TITLE _____

THIS PAGE IS TO BE HANDED IN AT THE END OF THE LAB.

State hypothesis to be tested: _____

What is the control (observation without the treatment) for the experiment? _____

DATA

TABLE

INDEPENDENT VARIABLE (INTENTIONALLY VARIED IN THIS EXPERIMENT)	DEPENDENT VARIABLE RESULTS (VARIED AS A RESULT OF INDEPENDENT VARIABLE CHANGES)
_____	_____
_____	_____
_____	_____
_____	_____

CONCLUSIONS DID ANALYSIS OF YOUR DATA ALLOW YOU TO ACCEPT YOUR HYPOTHESIS, OR REJECT IT? _____ DID IT CAUSE YOU TO ADVANCE A NEW HYPOTHESIS? IF YES, WHAT IS IT? _____

WHAT IS THE SIGNIFICANCE OF YOUR RESULTS TO THE UNDERSTANDING OF PREGNANCY OR HUMAN EMBRYOLOGY? _____

NAME SOME FACTORS IMPORTANT IN REGULATING THIS REACTION.