

Oral Report Outline

Engineering 1282H

Spring, 2015

Group Y1

Mahnoor Naqvi

Tony Satroplus

Spandan Shah

Matthew Viens

DMG 3:00 PM

Date of Submission: 04/10/15

- I. Title Slide - Matthew
 - a. Names
 - b. Title
 - i. pH Variations Effect On Cell Adhesion
- II. Background on pH - Matthew
 - a. Adhesion theory
 - b. Cell membranes
 - c. Cell membranes by acidic effects
 - i. Picture of acid destroying stuff
- III. Procedure overview – Tony
 - a. Picture of buffering solutions for pH with cell incubation
 - b. Comments on the cells being incubated in the water with a change in pH
 - c. Say that everything else was keep to the standard microfluidics procedure except for the incubation
 - d. Picture of the isometric chip assembly
- IV. Results Tables - Tony
 - a. This slide shows the tables for the average shears necessary for the standard water incubation and the modified pH
 - b. Meant to physically show the number comparison in play before showing the graphs
- V. Statistics - Mahnoor
 - a. Table with the calculated values from the one sided t-test

- b. Statement with regards to the null and alternative hypothesis
- VI. Graph of the results - Mahnoor
- a. This entire slide it to be a graph of the pH values versus the heights necessary to generate critical shear
 - b. Critical shear is an arbitrary constant unit.
 - c. Show the mathematical equation for pH's effect on the height necessary to generate shear with reasonable bounds as to its effect.
- VII. Summary - Spandan
- a. pH effects equation
 - b. null hypothesis or alternative hypothesis
 - c. picture of the chip in action
- VIII. Future work - Spandan
- a. Repeating the experiment again with further data points to refine equation
 - b. Working with bases instead of acids
 - c. Different effects of strong acids, strong bases instead of generation of an equilibrium
- IX. References - Matthew
- a. Mercer-Bonin
 - b. Microfluidics class procedure
 - c. Problem statement
 - d. Anything else

Presentation Logistics

- The presentation needs to be done by Friday the 17th of April, Anno Domini 2015.
- Practicing will be done the weekend directly following Friday the 17th
- The team will practice in Thompson in one of the rooms for group use. And will practice fully twice.
- The practice will not be in front of a group.

Questions

- What are the applications from this experiment
- Why did the group choose this variable
- Since the pH was only changed once, how would the relationship for cell adhesion change
- What do you think that basic solutions would yield, and is the relationship similar
- How repeatable is your experiment using different types of acids.