Senior Design 492 Biweekly Report 5

Date : 3/22/2018
Project title : Patch-clamp microchip testing circuit interface
Client & advisor : Que Long
Team member & Roles :
---- Chenhang Xu - team communication leader
---- Daiyuan Ding - team webmaster
---- Li Qian - team leader & time keeper
---- Ningyuan Zhang - team programmer
---- Yigao Li - team test leader

Weekly summary :
Had regular group meeting, client meeting and advisor meeting. Discussed the details of the microchip model with graduate students. Got raw data table from empty model and resistance replacement methods. Did several tests with culture medium and neuron and captured the image of attached cells under microscope.

Past Week Accomplishments

Member name	Accomplishments
Chenhang Xu	regular group meeting with advisor. Finish the PC-ONE set up. Discuss the detail of our microchip. Collect the data from our test.
Daiyuan Ding	Met with advisor and graduate student, talked about the details and core ideas of the experiments. Got data from the measurment. Finish setting up.
Li Qian	Met with graduate student, got more information and details about the microchip. Finished the setup of PC-One. Got the first image of the captured neuron.
Ningyuan Zhang	Met with advisor/client, met with graduate students and held regular group meeting. Got the image of captured neuron under microscope. Got the raw data that needed to be calculated.
Yigao Li	Met with advisor and graduate student to gain more information about test.Got the result from measurement.

Pending issues

Member name	Issues
Chenhang Xu	We cannot push the cell to the pipette. The only way we can do is wait. We need to make sure the cell is still alive during. So we need to finish the whole test within 5 days.
Daiyuan Ding	Need to solve the problem that the time we have to wait the cells move to the tip of pipette is unpredictable. It may be 10 mins or 1 hour. Also, we have to find a way to improve the situation that sometimes there is gap of tip of pipette and membrane.
Li Qian	Make sure the cell been used within 5 days. Find out ways to reduce the distance between membrane and pipette and need to the test of capturing cell.
Ningyuan Zhang	Reduce the distance to ideal 150 micrometers between pipette and cells. Keep cells active within 5 days and can not pass a week to make sure cells are good for data recording. Eliminate gap of tip of pipette and membrane.
Yigao Li	FInd the way to make the time that cells move to the tip of pipette is predictable. and cells be used in test should live for at least 5 days.

Individual contribute

Name	**Individual Contributions**	**Hours these 2 weeks**	**Hours Cumulative**
Chenhang Xu	Regular group meeting. Simulate the test on the small resistor.	**8**	**38**

	Discuss the detail about our new microchip.		
Daiyuan Ding	Met with advisor and graduate student. Collect the data and pictures we need for presentation. Discussed about the chanllenges we are facing.	**8**	**38**
Li Qian	Met with graduate student, got more information and details about the microchip. Finished the setup of PC-One. Got the first image of the captured neuron. Had the presentation of the current status and issues that we will face.	**6**	**40**
Ningyuan Zhang	Drafted the biweekly report. Held meetings with group members, advisor/client and graduate students.Presented the current status of project and pending issues of project during class meeting.	**8**	**38**
Yigao Li	write the weekly report and meet with group members. Setting up the microchip.	**8**	**38**

Comments and Extended Discussion

Need to find out the way to solve the randomly spread neuron in microchip, and make sure the ideal distance between the tip of pipette and neuron to be 150 micrometers.

Plan for Coming Week

For the next week, we need to calculate the current of the electrons that moving through the neuron's membrane from the gained raw data cheat.

Summary of Weekly Advisor Meeting

Discussed the process we have got and understand the method of how to apply voltage to the neuron.
Discussed the details of how to eliminate the gap between the tip of pipette and membrane of neuron.