BIEN 1709

BIOENGINEERING LABORATORY

Contents of a Work Plan

All experimental work undertaken by individual staff or students within the labortory requires a dedicated work plan to be written. This document should include the following information:

1. General Information

- name of researcher(s): QIN, Zhongya
- name of project supervisor: Prof. QU, Jianan
- project code or title: Study of Laser Induced Autophagy
- proposed location: BIEN Lab
- start date: ASAP

2. Experiment /Project Description

- Autophagy plays an important role in the degradation and recycling of cellular components. And the mechanism behind is not fully understood yet. Fluorescent microscope provides a unique tool to study the dynamic process in living cell. In this project, LC3-GFP HeLa cell will be used to study the process of laser induced autophagy. First a relative high power laser will be used to damage a small part of cell (mainly mitochondria), which may initiate autophagy and create a highly fluorescent spot. After that, the dynamic process of autophagy will be imaged with a home-built two photon microscopy.

3. Equipment List

Process	Apparatus
Buffer solution preparation	pH meter, balance
Fluorescence measurement and DNA/RNA quantitation	Microplate reader, 96-well microtiter plate, biophotometer
Incubation	Water Bath
Mammalian Cell Culture	37 centigrade water bath, Biosafety Cabinet, Inverted microscope, CO_2 incubator, 96-well tissue culture plate, Pasteur pipette, 75cm^2 flask, tissue culture dish, digital camera, Plate reader
Cell staining	Pipette, Biosafety Cabinet, Incubator

4. Experimental Procedures

-4.1 mammalian cell culture

Cell line: HeLa, SiHa, HEK293 (BSL-2)

1. Pre-warm all solutions at 37 centigrade before use.
2. Turn on the UV of BSC for 15 to 30 min and then switch it off.