

Chapter 1

Introduction

1.1 Host Institution Description

National University of Singapore (NUS) was founded by 23 medical students in 1905, led by a businessman known as Tak Jiak Kim, in order to serve the community's needs. Today, NUS has 16 faculties, colleges, and schools, 37 university-level research centers, 5 research-excellence centers, 60 bachelor degrees, 54 second majors, 24 concurrent degrees, 35 joint degrees, 73 double degrees, 174 postgraduate degrees (graduate diploma, master, and doctoral levels), three thousand and seven hundred undergraduates, eleven thousand and five hundred graduate students, two thousand and four hundred faculties, four thousand research staffs, four thousand executive and professional staffs, and one thousand and six hundred administration staff.

NUS has the vision to be a leading global university and shaping the future, while its mission is to educate, inspire, and transform. Its main activity is for teaching and educating the future leaders and professionals, through their colleges, schools, and faculties. On the other hand, NUS also strives for its research activities through the university-level, excellence center, and even with the industries. It has five core values, which are the principle of conducting the university activities: innovation, resilience, excellence, respect, and integrity. The chancellors, their vice, and presidents make up the organizational structure, and these positions were endowed through several people at different times, not only the NUS itself but also University of Malaya (Singapore Division), Raffles College, and King Edward VII College of Medicine. Now, NUS is renowned not only for its medical faculty, but also other departments as well, ranging from: life sciences, arts, dentistry, engineering, social sciences, computing, conservatory of music, business, and law.

1.2 Department of Biological Sciences (DBS)

NUS DBS is located at S1A Building, after the Medicine and Dentistry areas. It is beside the University Hall, and easily to be reached by the internal bus (alight at UHall or Opp UHall). SA1 Building consists of 7 levels, and each level consists of 2 wings (right and left). Each of the wings is occupied by three laboratories, with the respective professors. Beside the labs, there are also other rooms for the students and staff, private room for the professors, discussion room, and cell culture room. The plate room and autoclave machines (clean and dirty) are shared between the labs and even with the other wing.

Mechano Plant Laboratory is located on the sixth floor, at the right wing from the elevator and stairs. It is under Assistant Professor Yuchen Long, and its main research is on the physical and biological effect of the environment on the plant, such as: hydraulic and mechanical pressure, capillary reaction, etc. This laboratory is under the Molecular and Cellular Biology Division. There are several people working under A/P Yuchen Long laboratory, ranging from: postdoctoral fellow, graduate students, and undergraduate NUS students using the summer program (UROPS).

It was the first time for this laboratory to participate in the NUS Amgen Scholar Program. Work cycle included from Monday until Friday, with flexible time. However at some point, on the holiday I had to come to the laboratory (this happened twice), to move the petri dish squares from the vertical into horizontal position. On Saturday, sometimes I also went to the laboratory to check the number of bacterial colonies and moved them into the refrigerator. The laboratory work (especially in the July) could be very heavy at some days, which were the infection and enumeration days, however at other days (bacterial inoculation and colonies counting) they could be done within 15 minutes. In June, I was mostly exposed to all of the necessary laboratory techniques and skills, safety protocols and regulations at the beginning of the program (including the orientation day).