

# Summer Course in Frontiers in Microbiome and Cancer Immunology, National Yang-Ming University, 2017

The Institute of Biopharmaceutical Sciences &  
The Institute of Microbiology and Immunology  
National Yang-Ming University, Taipei, Taiwan,  
No.155, Sec.2, Linong Street, Taipei, 112 Taiwan (ROC)

<http://oia.ym.edu.tw/index.php/zh-tw/2017-04-19-03-22-34>

<b>Objective</b>	This course is designed to highlight areas of discovery research currently capturing the interest of pharmaceutical industrial, and poised to grow in importance over the next few years. Students will have comprehensive knowledge on microbiome and cancer immunology in this 2-week course.
<b>Outline</b>	The course includes lectures and two levels of workshops. The lecture covers frontier concepts in bacteriology, microbiome and cancer immunology which will be held in the morning for all participants. The workshops will be held in the afternoon: 1) Basic lab training: for undergraduate students. 2) Advanced lab training: for graduate students and above. Two-day field/industrial visits and culture interactions are included.
<b>Schedule</b>	Two weeks (10 days, 54 hours, 3 credits) 9:00-11:30: lecture; 13:30-16:30: lab; 16:30-17:00: discussion
<b>Prospective students</b>	Students (undergraduate and graduate levels) and researchers in the biomedicine, biotechnology, pharmacology and drug development areas who are interested in Microbiology and Immunology are all welcome.
<b>Language</b>	English
<b>Grading</b>	Exam/discussion
<b>Tuition waiver</b>	Application of tuition waiver is available. Please mark this option when register.

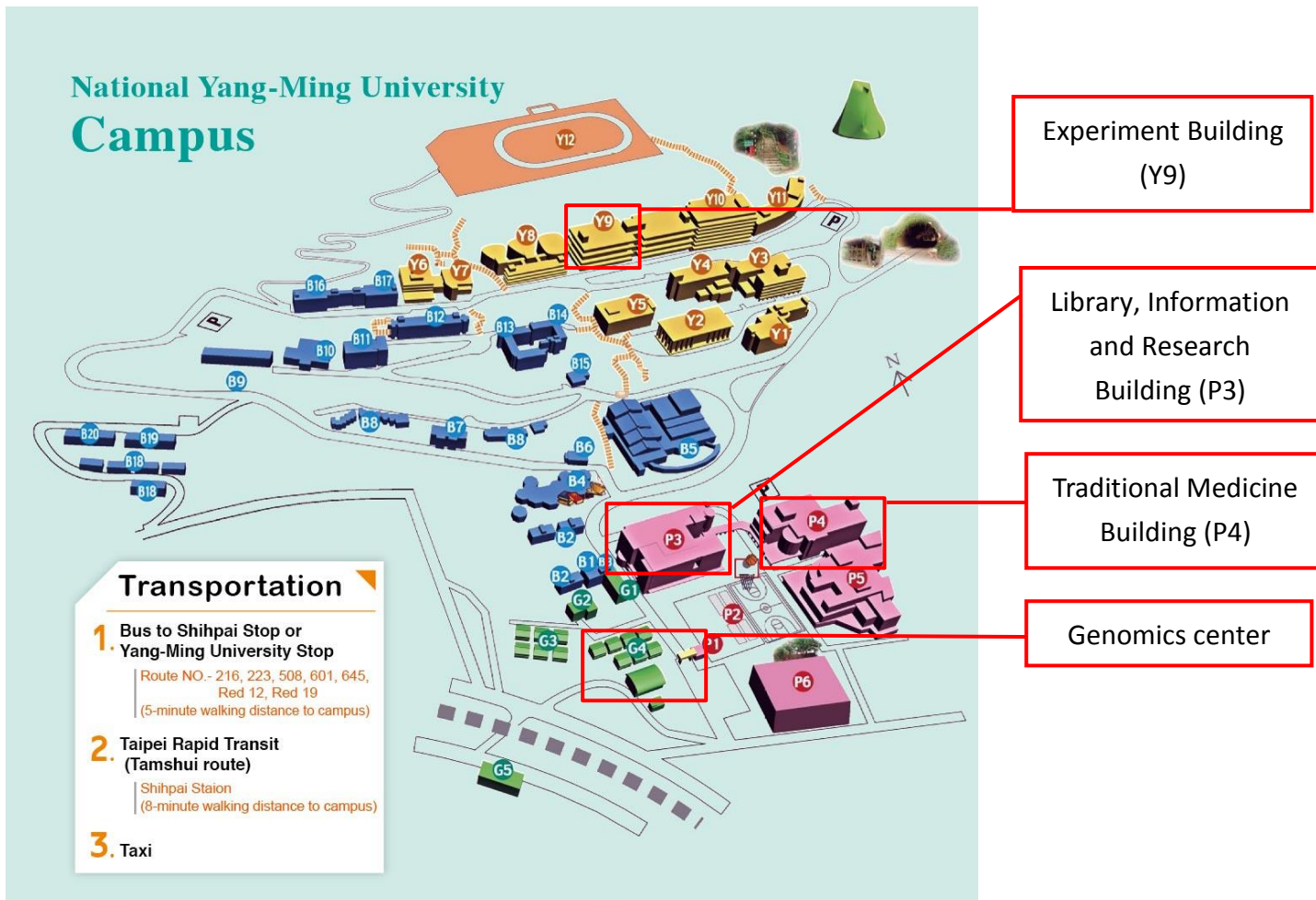
	7/24 Mon	7/25 Tue	7/26 Wed	7/27 Thu	7/28 Fri
08:30-09:00	Registration				
09:00-09:30	President KY Liang, Dean SH Wei, Dean JJ Kang, Dean HC Chen  <b>Opening &amp; photo</b>  R401	YS Chu	I Dzhagalov	I Dzhagalov	Field trip 1:  SL Huang MJ Fann FH Hu YT Hou
09:30-10:00	AL Lee <b>Chinese Class</b>	Cell migration and cytoskeleton	Cancer and the Immune System	Cancer Immunotherapy	Biotech & pharma company visit
10:00-10:30	R401				
10:30-11:00	Chair: CY Huang  H Chan				
11:00-11:30	<b>Introduction to the pharmaceutical industry</b>	R401	R401	R401	1. Grape King Bio
11:30-12:00					2. BENED Biomed Co.
12:00-12:30	R401	Chair: SL Huang CY Huang  <b>Intro of NYMU</b>  JY Moon <b>Intro of Changwon National University, Korea</b>	<b>Dividing groups</b>	Lunch	
12:30-13:00	Chair: CY Huang SL Huang  H Chan	Ir. Liliek Sulistyowati <b>Intro of University of Brawijaya, Indonesia</b>	R401		
13:00-13:30	<b>Discussion/ Lunch</b>  R401	<b>Intro of USTH</b>  R401	Lunch  R401		
13:30-14:00	Y Su	YS Chu	YS Chu	FH Hu YT Hou	I Dzhagalov
14:00-14:30	<b>Cancer stem cells as drug targets</b>  R401	Immuno-fluorescence staining for cell migration machinery  R728 Library, Information and Research Building	Immuno-fluorescence staining for cell migration machinery  R630 Library, Information and Research Building	Immuno-precipitation, Agglutination and Immuno-electrophoresis	Multicolor flow cytometry
14:30-15:00					
15:00-15:30					
15:30-16:00					
16:00-16:30					
16:30-17:00	<b>Biosafety Training</b>  R401		SH Chiou	C208, Experiment building	R406
17:00-17:30			<b>Stem cell at Taipei Veterans General Hospital</b>		

	7/31 Mon	8/1 Tue		8/2 Wed	8/3 Thu		8/4 Fri				
09:00-09:30	SL Huang	I Dzhagalov		YH Huang	SL Huang		Field trip 2 :				
09:30-10:00	<b>Basic introduction of Bacteria</b>  R401	<b>Immune system's interaction with gut microbiome</b>		<b>A new era of deep sequencing and microbiota data analysis</b>	<b>Microbiome &amp; human health/disease</b>		SL Huang CY Huang SD Tsen FH Hu YT Hou				
10:00-10:30											
10:30-11:00											
11:00-11:30											
11:30-12:00	Chair: SL Huang R Kirschner <b>Basic introduction of Fungi</b> R401	R401		R401	R401		<b>Microbial diversity field trip</b>  (Yang Ming Shan National Park)				
12:00-12:30	<b>Lunch</b>	<b>Lunch</b>		<b>Lunch</b>	<b>Lunch</b>						
12:30-13:00	R401	R401		R401	R401						
13:00-13:30	R Kirschner SL Huang FH Hu YT Hou	FH Hu YT Hou	I Dzhagalov TA Zou	YH Huang	FH Hu YT Hou	SL Huang					
13:30-14:00	<b>Microscopic observation of fungi</b>	<b>Phagocytosis</b>	<b>Isolation and characterization of rare cell populations in mouse gut</b>	<b>Bio-informatics analysis</b>	<b>Anti-biotics resistance &amp; bacterial identification</b>	<b>Bacterial metabolite and enzyme analysis</b>					
14:00-14:30	<b>Bacterial isolation, gram stain</b>										
14:30-15:00											
15:00-15:30											
15:30-16:00				R401 Library, Information and Research Building	C208 Experiment Building	R312					
16:00-16:30				YH Huang							
16:30-17:00	C208 Experiment Building	C208 Experiment Building	R406	<b>Visit Genomics Center</b>	<b>Examination</b> C208 Experiment Building						
17:00-17:30											
18:00-21:00					<b>Banquet</b>						

Note: the basic lab trainings are shown in gray background

**Locations:**

1. Rm 401, Traditional Medicine Building B(P4), National Yang-Ming University
2. Rm 406, Ivan Dzhagalov's Lab, Traditional Medicine Building B (P4), National Yang-Ming University
3. Rm 312, Shir-Ly Huang's Lab, Traditional Medicine Building B (P4), National Yang-Ming University
4. Library, Information and Research Building (P3), National Yang-Ming University
5. Genomics center (G4), National Yang-Ming University
6. C208 Experiment Building (Y9), National Yang-Ming University



■ Administration & Teaching Area  
 ■ Residence Area  
 ■ South Area  
 ■ Zhi-He Research Park

Bldg(●) Name	Bldg(●) Name	Bldg(●) Name
Y1 Nursing Building	B1 Alumni Hostel	B11 Men's Dormitory 3
Y2 Administration Building	B2 University Apartments	B12 Men's Dormitory 1
Y3 Medical Building II	B3 Guest Housing	B13 Women's Dormitory 1
Y4 Dentistry Building	B4 Boya Center	B14 Women's Dormitory 2
Y5 Medical Building	B5 Auditorium and Activity Center	B15 Presidential House
Y6 University Teaching Complex Building 2	B6 University Staff Suites	B16 Women's Dormitory 3
Y7 Center for General Education	B7 University Apartments	B17 Men's Dormitory 2
Y8 University Teaching Complex Building 1	B8 University Houses	B18 University Apartments
Y9 Experimental Building	B9 Swimming Pool	B19 Men's Dormitory 5
Y10 Research Building	B10 Cafeteria	B20 Women's Dormitory 5
Y11 Laboratory Animal Center	P1 Security and Information	G1 Post Office
Y12 Field and Tracks	P2 Tennis and Volley Ball Courts	G2 Zhi-He Building
Y13 Student Affairs Division	P3 Library, Information and Research Building	G3 Incubation Center
	P4 Traditional Medicine Building	VGH National Yang-Ming
	P5 National Research Institute of Chinese Medicine	Center
	P6 Yang-Ming Square	G4 University Genome Research Center
		G5 Xi-An St. Dormitory
		P Parking Lot

## Summer course organizer

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<http://imi.web.ym.edu.tw/files/13-1255-15739.php>

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## Summer course advisor

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## Teaching team

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**10. Ai-Li Lee (李艾莉), Master**

Chinese teacher

**Guest speaker**

**1. Suh-Der Tsen (程樹德), Ph.D.**

Retired faculty, IMI, NYMU, Taiwan

**2. JA-YOUNG MOON (文永華), Ph.D.**

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**Access**

NYUM: <http://web.ym.edu.tw/bin/home.php>

Taiwan Taoyuan International Airport: <http://www.taoyuan-airport.com/english/Index/>

Taipei Songshan Airport: <http://www.tsa.gov.tw/tsa/en/home.aspx>

**Language**

English

**Homepage**

For updated information, visit web site: <http://oia.fong-ryh.com/index.php/en-gb/>

**Accommodation**

Student and visiting scholar dorms are available

**Events****Opening**

President of NYMU, Dr. KY Liang;

Dean of Office of International Affairs, Dr. SH Wei;

Director of Institute of Microbiology and Immunology, Dr. SL Huang;

Director of Institute of Biopharmaceutical Sciences, Dr. CY Huang

Time: 9:00 – 9:30, July 24 (Monday), 2017

Location: R401

# Attachment

## Field trip 1:

Biotech Company 1, GRAPE KING BIO, 葡萄王生技 (adapted from <https://www.grapeking.com.tw>)



### R & D and technology

Grape King Bio's is committed to the development of health food and raw materials. In order to seize competitive initiative, Grape King Bio established its Bioengineering Center in 1991. This was long before any of its competitors, thus giving them a decade of research and development experience ahead of other manufacturers.

Grape King Bio in recent years has been actively involved in rebranding. In 2012 we revealed our new logo. Moreover, Grape King Bio has consolidated consumer groups to strengthen customer relationships. In addition, we have worked hard to raise the health awareness of younger generations and promote long-term wellbeing.

### Assembly and Manufacturing

Grape King Bio first started to manufacture pharmaceutical products and then branched out into health food supplements. Our factory is GMP, cGMP, ISO 22000, and ISO17025 certified and has passed PIC/S GMP evaluation. We have accumulated cooperative knowledge and excellent reputation with both government and academia in production, quality control, logistics management, and all aspects of manufacturing.

A good business should move from right to the left, listening to the voice of the market and customer feedback. In turn, the research and development department will be able to create higher value-added products and achieve a sustainable operation and development.

### Marketing and Brand

Even after being in the Taiwanese health food market for over 47 years, the unshakeable brand "Grape King" is still our greatest asset. Using cutting-edge biotechnology to create a healthier and hopeful life for people, Grape King Bio has long been working towards the needs and requirements of consumers. In order to break through the difficulties encountered in the health food industry, Grape King Bio established its hugely successful Multi-Level Marketing subsidiary, Pro-Partner. Since its establishment, Pro-Partner has enjoyed a prosperous year on year growth in turnover. In 2013 Pro-Partner was ranked 66 in the Top 100 MLM companies listings. In 2015 Pro-Partner's revenue exceeded NT\$ 7bn ranking it the 2nd most successful M.L.M. company in Taiwan, and the only solely Taiwanese-owned company in the Top 5.

At Grape King Bio, everyone works closely together to ensure that a common goal of achieving the complete smile curve is accomplished. Linked together from the left side of R & D and technology, to the middle area, assembly and manufacturing, the right side of the logistics, marketing and brand, our smile curve becomes visible. With this smile curve and using advanced biotechnology, Grape King Bio can become a guardian for people's health.

## Field trip 1:

Biotech Company 2, BENED BIOMEDICAL, 益福生醫 (adapted from <http://benedbiomed.com>)



### Mission

- ◆ To convey the correct health knowledge of the world, and to strengthen the importance of preventive medicine.
- ◆ And actively develop a simple and effective way of health care, to bring modern health and vitality of the new opportunities.
- ◆ Will be pleased to research results into the majority of the market, taking into account the care of vulnerable groups, take care of the community.

### Core Values

- ◆ To probiotics as the core of research and development, continue to promote the integration of innovative research and development program.
- ◆ Professional strains of research and development, high-standard standard operating procedures, taking into account the health effects and quality stability.
- ◆ The first probiotics from the physiological field to the medical field of the depth of development, the establishment of medical probiotics international enterprise pioneer.

### Vision

- ◆ Continuous innovation research, and hope to become a medical thinker field.
- ◆ To research and development as the core, to promote the international market as the goal; the future will promote clinical trials, but also actively planning to build pharmaceutical-grade probiotics factory, for the probiotics industry into a new imnetus.



# Attachment

## Field trip 2:

### Yang Ming Shan National Park, 陽明山國家公園 (adapted from

[http://english.ymsnp.gov.tw/index.php?option=com\\_content&view=featured&gp=0&Itemid=104](http://english.ymsnp.gov.tw/index.php?option=com_content&view=featured&gp=0&Itemid=104))

### Yang Ming Shan National Park

Yangmingshan National Park covers a total area of 11,455 hectares with elevations of between 200 and 1120 meters above sea level. The park is famous for its unique volcanic geology and topographical sights, with signs of volcanic activity like fumaroles and hot springs everywhere. It's easy to reach from Taipei, just one hour by bus. Yangmingshan used to be known as Tsaoshan (草山, Grass Mountain), a term which embraced the whole area of Mt. Datun, Mt. Qxing and Mt. Shamao with its grassy slopes. Yangmingshan at the suggestion of local representatives, in honor of the Ming dynasty philosopher, Wang Yang-Ming (王陽明, 1472-1529).



### Geology



Millions of years ago, subterranean movements caused a massive collision between the Philippines oceanic plate and the Eurasian continental plate. The resulting pressure spawned violent volcanic activity and lifted the Eurasian plate. Incandescent magma as hot as 1,000 degrees Celsius burst from erupting volcanoes and covered Tertiary sedimentary rock to form the Tatun volcano group in the northern Taiwan coastal region. Yangmingshan's popular hot springs can be divided into three types according to their chemical composition:

- Acid sulfate (white sulfur) hot springs, such as those at Dahuangzui (大磺嘴), Zhuzihu (竹子湖), Sihuangziping (死磺子坪) and Gengziping (庚子坪)
- Acid sulfate chloride (green sulfur) hot springs, such as the one at Xinbeitou (新北投)
- Neutral iron-bearing hot springs, such as those at Dingpi Bridge (鼎筆橋) and Lengshuikeng (冷水坑); these are cooler and mostly consist of indirectly heated groundwater

The mineral deposits formed by fumarolic activity, hydrothermal alterations and weathering of volcanic rocks in the Yangmingshan area include sulfur, pyrite, limonite, acristobalite ("white earth"), Hokutolite deposit and bauxite.

### Climate

To most people, Yangmingshan in the spring means flowers blooming everywhere as pretty as a picture; in the summer, it's the perfect place to go to beat the heat; in the autumn, hillsides covered in flowering silver grass, and the occasional tree with red leaves, bring a touch of wistfulness to the land. Yangmingshan's annual rainfall is 4000 millimeters, with at least 190 rainy days a year. The park's high elevation makes it three or four degrees cooler than nearby Taipei basin, cold in winter and cool in summer. Its mountainous topography and complex terrain mean that there can be clear microclimatic contrasts between different areas of the park: sometimes it can be raining in the east yet clear in the west. Clear skies can be abruptly overcast by sudden swirls of thick mist which rise so fast you would hardly believe it unless you see it for yourself.

