



國立臺灣海洋大學



生命科學暨生物科技學系

Department of

Bioscience and Biotechnology

Immuno-OncoVirology Lab



Prof. Shiow-Yi Chen

Contact : 2462-2192 ext 5519(O); 5524(Lab)
Email: sherry0930@ntou.edu.tw.

Research Topics:

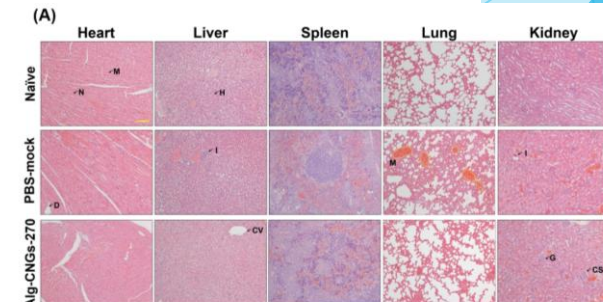
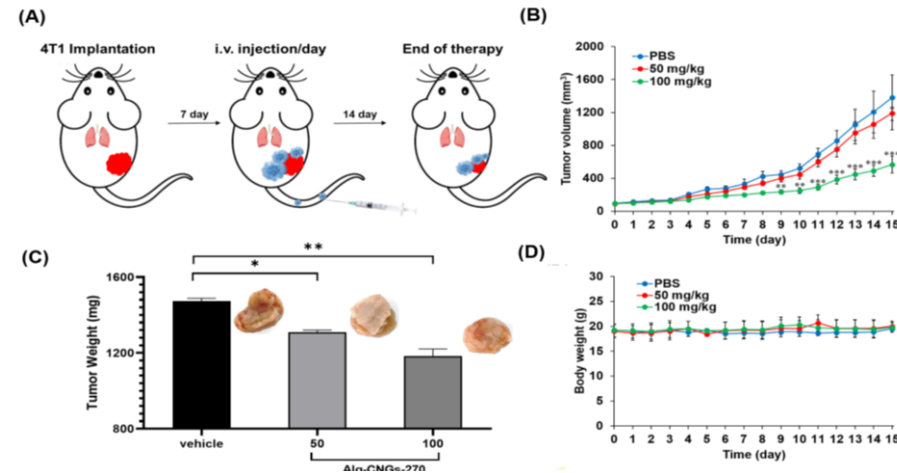
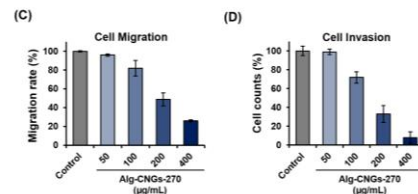
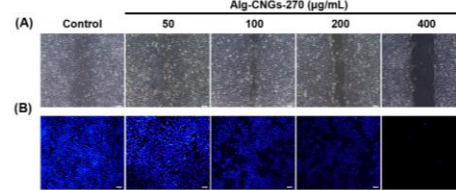
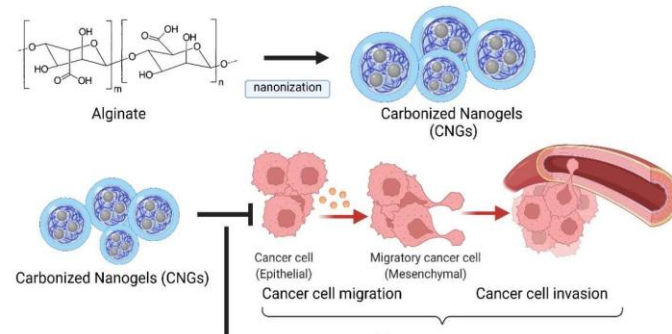
- Triple-negative breast cancer (TNBC)
- Dengue virus & Influenza virus)

Research focus:

- Nanodrugs for anti-cancer metastasis & antiviral

Specialty :

- Cell signaling & gene regulation



Laboratory Techniques

Cell Biology Techniques

-Cell culture, Cell viability assays,
Wound healing assay, Cell invasion assay,
Sphere formation assay, Flow cytometry,
Immunofluorescence, Confocal microscopy,
Virus culture and Virus titration (plaque assay)

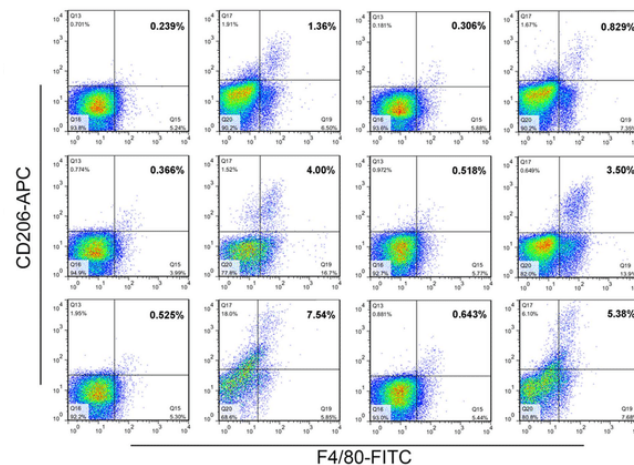
Mouse Model Techniques

-Mouse raising, Tumor injection and isolation,
Virus infection, Mouse dissection, Hematoxylin,
and Eosin Staining (H & E stain), Immunohistochemistry
(IHC), and Non-invasive *in vivo* imaging system (IVIS)

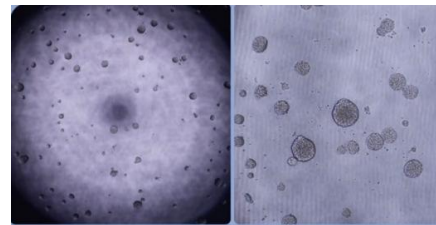
Molecular Biology Techniques

-CRISPR, Genomic DNA isolation, Cloning,
Gene overexpression, RNA interference
(RNAi, gene knockdown), Quantitative PCR
(Q-PCR), Western blot, Proteomics, and
Metabolomics

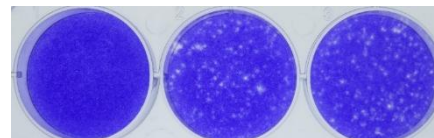
Flow cytometry



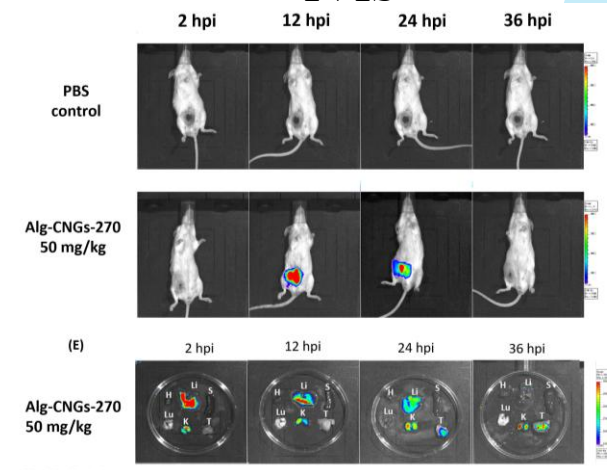
Cancer stem cell



Plaque assay



IVIS



Gene Therapy and Precision Medicine Laboratory

From Gene Regulation to Healthy Longevity



Dr. Yu-Chiau, Shyu

Research Directions

- Gene Therapy
- Rejuvenation
- Healthspan
- Immunomodulation
- Precision medicine
- Translational medicine
- Regenerative medicine

Contacts

Email: yuchiaushyu@mail.ntou.edu.tw

Laboratory Phone Number:

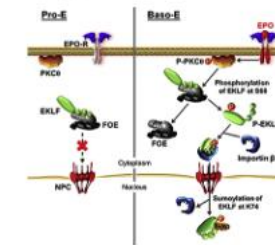
(02) 2462-2192 ext. 5511 (Laboratory);
5506 (office)



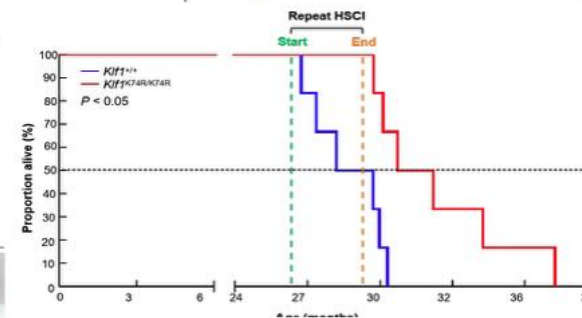
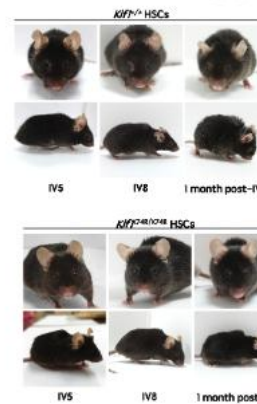
Rejuvenation



Signal Transduction



Gene Therapy



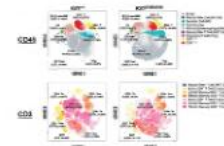
Comparative survival characteristics of *Klf1*^{+/+} mice after HSCi

Lifespan (Years)						
Group	Genotype	Injection	Mean	Maximum	Minimum	n
Male	<i>Ekl</i> ^{+/+}	<i>Ekl</i> ^{+/+}	89.84 ± 7.6**	102.59	82.91	6
	<i>Ekl</i> ^{+/+}	<i>Ekl</i> ^{+/+}	80.25 ± 3.9	84.39	75.07	6

**≤0.01

14 % 26 %

Immune Profiling



Major Awards

The 21st Y.Z. Hsu Scientific Award
Y.Z. Hsu Scientific Paper Award
Far Eastern Y. Z. Hsu Science and Technology
Memorial Foundation

The 2nd Tien-Te Lee Biomedical Award
Outstanding Thesis Award
Yung Shin Tien-Te Lee Biomedical Foundation

Position

Room 207, 2nd Floor, General Building II (GH2)

Experience

Assistant Professor Institute of Biopharmaceutical Sciences, National Yang-Ming University. 2012 - 2014
Jointly Appointed Assistant Research Fellow Department of Education and Research, Taipei City Hospital. 2012 - 2014
Assistant Research Fellow VYM Genome Research Center, National Yang-Ming University. 2014 - 2015
Associate Research Fellow Community Medicine Research Center, Keelung Chang Gung Memorial Hospital. 2015 - 2019
Visiting Associate Research Fellow Institute of Molecular Biology, Academia Sinica. 2015 - 2019
Adjunct Assistant Professor Department of Nursing, Chang Gung University of Science and Technology. 2017 - 2018
Adjunct Associate Professor Department of Nursing, Chang Gung University of Science and Technology. 2018 - 2024
Director Community Medicine Research Center Core laboratory, Chang Gung Memorial Hospital. 2021 - 2022
Convenor Personalized Medicine Committee, Healthcare Systems Consortium (HSC). 2021 - 2023
Adjunct Professor Department of Nursing, Chang Gung University of Science and Technology. 2024 - 2025
Associate Chair Community Medicine Research Center, Keelung Chang Gung Memorial Hospital. 2025 - 2026
Research Fellow Community Medicine Research Center, Keelung Chang Gung Memorial Hospital. 2019 - 2026
Adjunct Professor Bachelor Degree Program in Marine Biotechnology, National Taiwan Ocean University. 2025 - 2026

Urinary Tract Tumor and Orthopedic Translational Medicine

Assistant Professor. Yen-You, Lin



- B.Sc.: Department of Marine resource, National Sun Yat-sen University, 2002
- M.Sc.: Department of Marine biotechnology and resource, National Sun Yat-sen University, 2007
- Ph.D.: Department of Marine biotechnology and resource, National Sun Yat-sen University, 2009
- Postdoc: orthopedics, Pingtung Christian Hospital, 2016-2019
- Postdoc: Department of Pharmacology, School of Medicine, China Medical University, 2019-2024
- Research fellow: Translational Medicine Center, Shin Kong Wu Ho-Su Memorial Hospital, 2024-2026
- Assistant Professor: Life Science and Biotechnology, National Taiwan Ocean University, 2026-present

Research Directions :

- Urinary tract tumors
- Cancer immune evasion
- Arthritis
- Autoimmune disease
- Bioactivity of Natural products

Contacts:

Email: chas6119@ntou.edu.tw

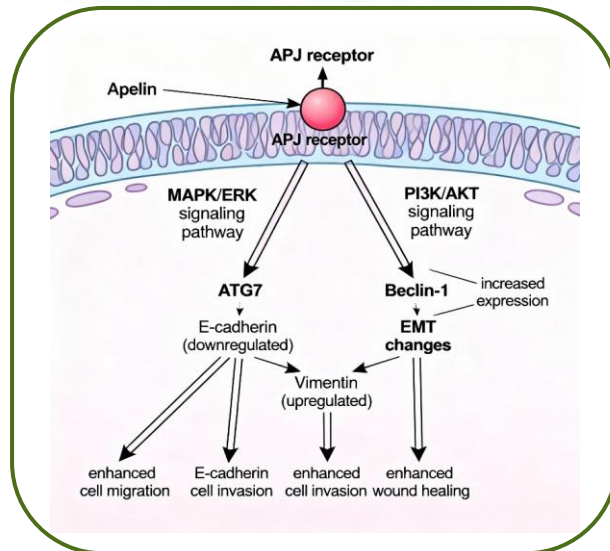
Phone Number:

+886 970798632

Position:

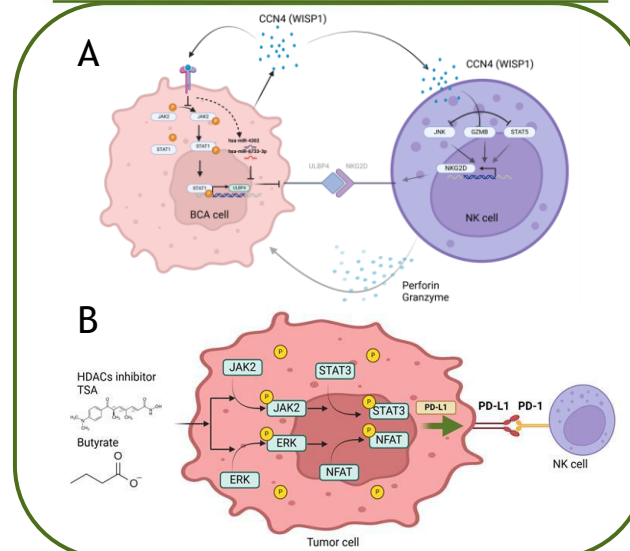
Laboratory: Comprehensive Research Building, Hall 2, 205R

Mechanism Exploration



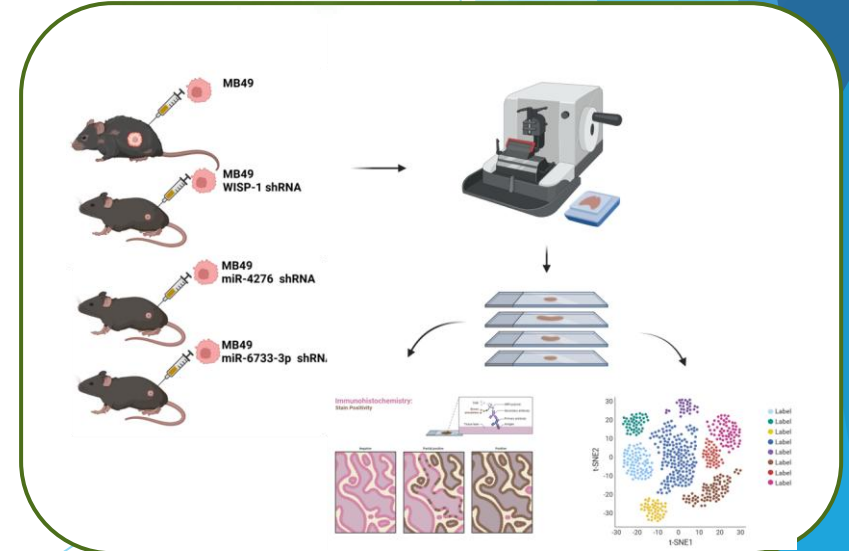
Adipokine promote the process bladder cancer

Immune evasion Mechanism



Tumor-promoting factor or clinical drugs on Immune evasion of bladder cancer

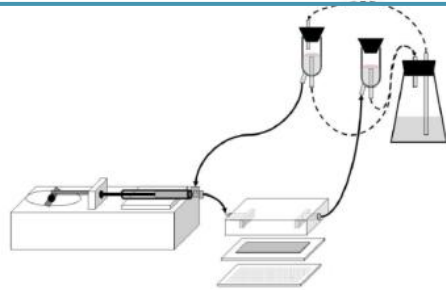
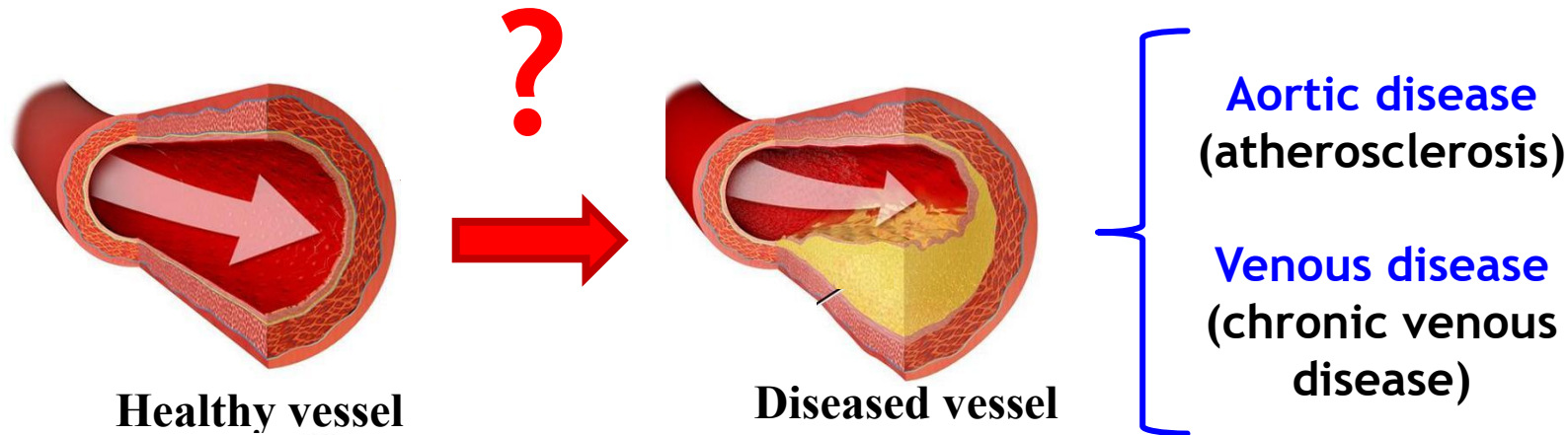
Animal experiments Verification



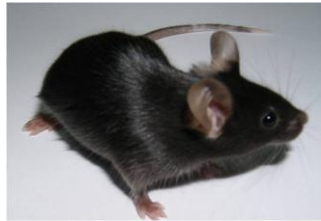
Subcutaneous cancer cell injection mode with tissue analysis

CARDIOVASCULAR RESEARCH LAB

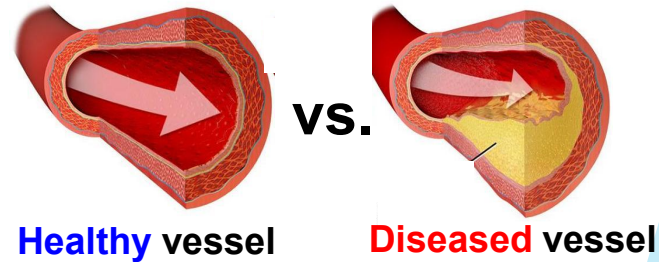
(DR. DING YU LEE)



In vitro cell model



In vivo animal model



Human specimen

Normal condition VS. Pathogenic condition

Identifying the protective or pathogenic mechanism in cardiovascular cells

Developing the therapeutic strategy for cardiovascular disease

Developing the diagnostic strategy for cardiovascular disease



National Taiwan Ocean University 國立臺灣海洋大學
Department of Bioscience and Biotechnology 生命科學暨生物科技學系

Dr. Chun-Ru Hsu 許淳茹

Lab of Microbiology and Translational Medicine

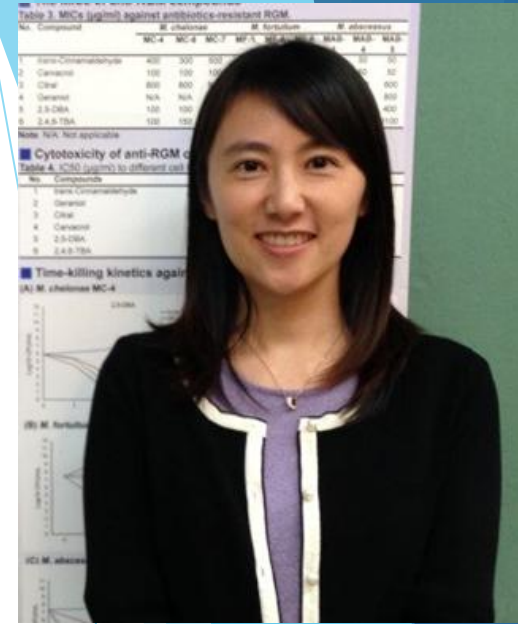
微生物與轉譯醫學實驗室

E-mail : chunruhsu@ntou.edu.tw

Specialty: Microbiology, molecular biology, medical microbiology, bacterial pathogenesis, microbe-host interactions

Research interests:

1. Microbial pathogenesis (mechanisms) and virulence factors
2. Bacteria-host cell interactions and molecular details
3. Antimicrobial activities of natural occurring compounds; potent alternative therapeutic agents against drug-resistant bacteria (alternative medicine; complementary medicine)
4. One health; environments and food-associated drug resistant bacteria
5. Microbiome and diseases

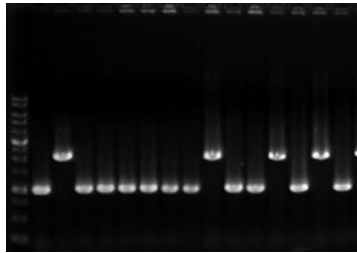


Research approaches:

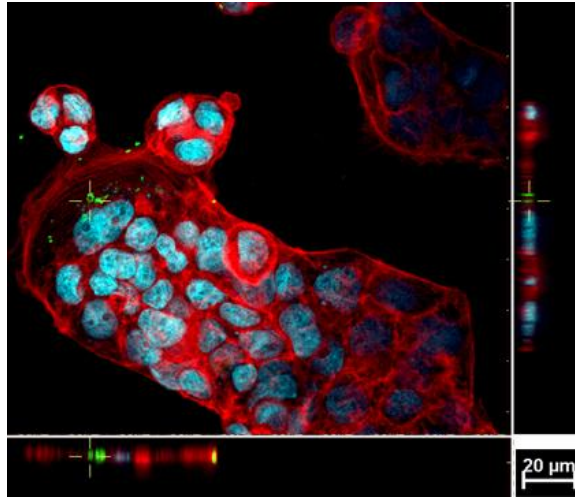
Microbiology, cell biology, molecular biology (e.g. PCR, RT-qPCR, cloning, gene deletion), biochemistry, animal models, genomics, transcriptomics, high-throughput sequencing (e.g. NGS)...



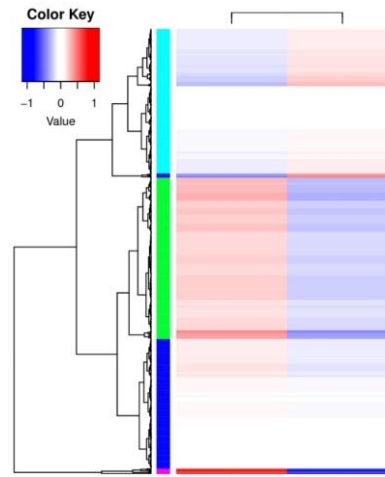
Bacterial culture



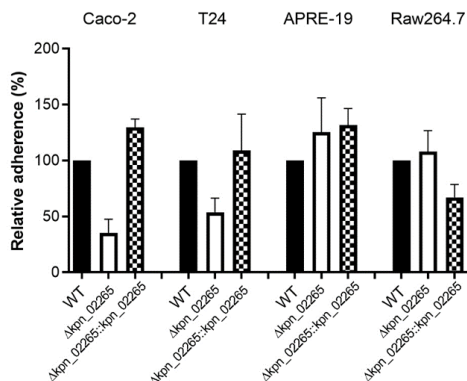
PCR



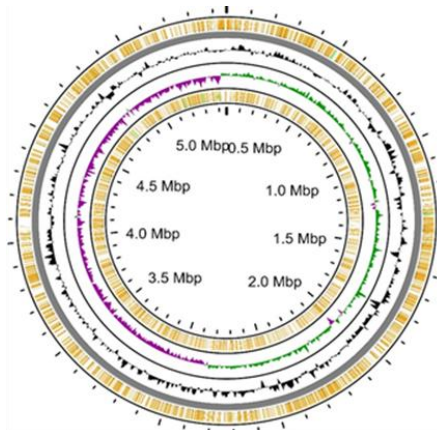
Immunofluorescence staining



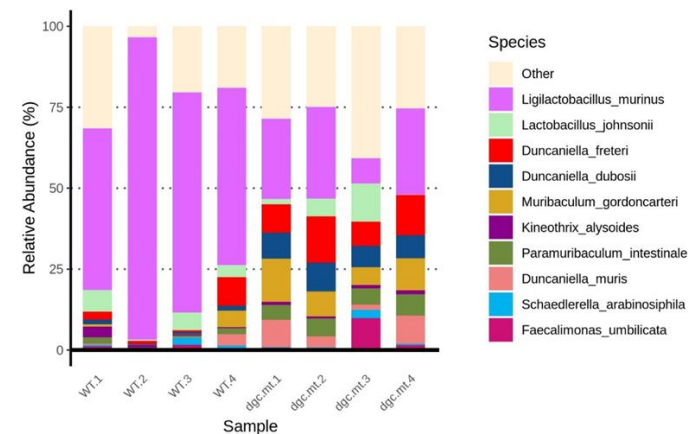
RNA-seq (gene expression profiles)



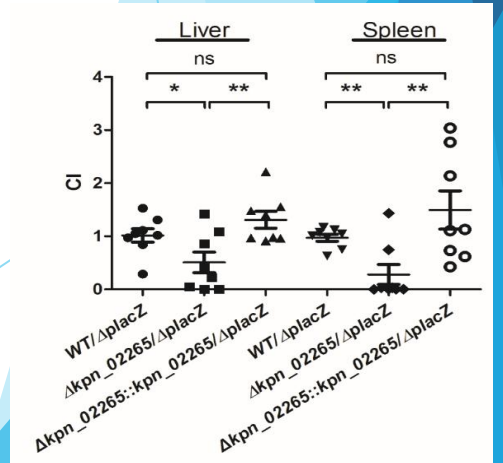
Cell adherence assay



WGS (whole genome sequencing)



16s microbiome analysis



in vivo experiments



Dr. Jeng-Wei Lu



Positions :

- Assistant Professor, Department of Bioscience and Biotechnology, National Taiwan Ocean University(2025-)

Education and job experience :

- Assistant Professor, Biotech Research and Innovation Centre, University of Copenhagen (2023-2025)
- Senior Postdoctoral Associate, Antimicrobial Resistance Interdisciplinary Research Group, Singapore-MIT Alliance for Research and Technology (2021-2022)
- Research Fellow, Department of Biological Sciences, National University of Singapore (2017-2021)
- Research Fellow, Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University (2013-2017)
- Ph.D., Department of Life Science, National Central University (2013)

Area of Interest:

- Disease or tumor biomarkers
- Disease animal models
- Drug and toxicity testing
- Development of a high-throughput screening platform for anticancer and antiviral drugs using machine learning
- Integration of basic medical research with clinical applications by physicians

Contact :

- E-mail: ljengwei@mail.ntou.edu.tw

Location :

- 2F, General Purpose Building 2

Research Topic

Tumor Biomarkers

Targets identification!!

Hepatocellular carcinoma



Prognostic biomarker

CDK5R2, CD90, PRL-1, CKD4, CCDN1, JMJD2B, SPIB, WNK1, XBP1, EGFL6

Oral cancer



Prognostic biomarker

ADAMTS14, SPNS2

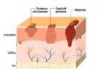
Colorectal cancer



Prognostic biomarker

SETDB1, YY1AP1, JMJD4, MN1

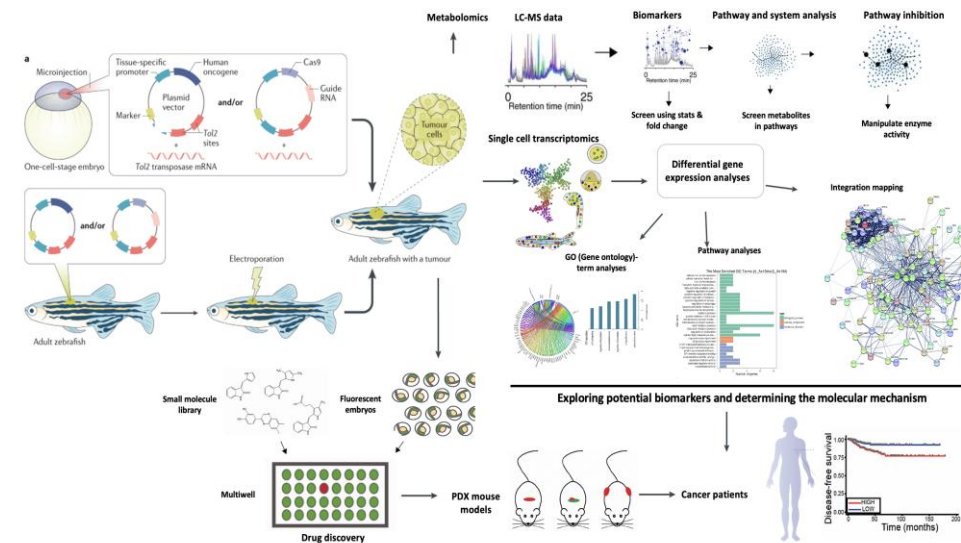
Melanoma



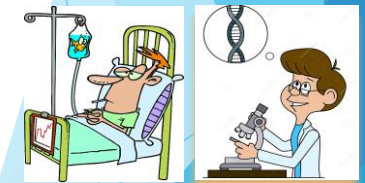
Prognostic biomarker

CK1ε, p-ERK1/2

Disease Animal Models and Drug Development Platform



Clinical Trials/Phase I Trials



Clinical Drug Trials in Collaboration with Physicians

Identification of Clinical Prognostic Biomarkers in Human Tumors

Model Organisms for Disease Mechanism Research and Drug Testing



國立臺灣海洋大學



Cross-Disciplinary Innovation Research Lab

... HANJIA'S LAB

Education

B.S.: Agricultural Chemistry, NTU

M.S. & Ph.D.: Biochemical Sciences, NTU

Postdoc: Osaka University, Japan; Academia Sinica, Taiwan

Positions

President, Taiwan Polyamine Society

Advisor, International Polyamine Research Foundation



Prof. Han-Jia Lin

Tel : 2462-2192 ext. 5524

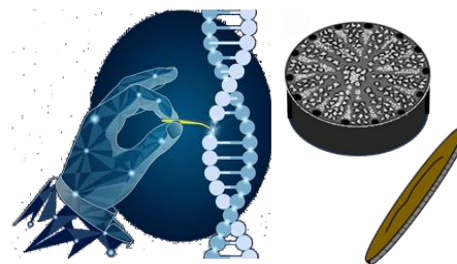
Email : hanjia@ntou.edu.tw

Website : <https://www.hanjialab.org/>

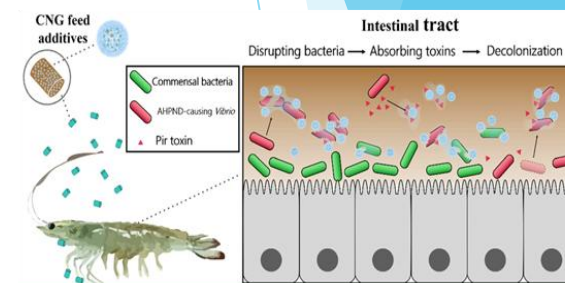
Lab : B101, College of Humanities and Social Sciences

Research Areas :

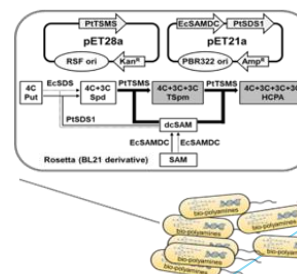
Diatom Molecular Genetics and Gene Editing



Molecular Herbal Nanotechnology for Aquaculture Applications



Special Polyamine Metabolism Mechanisms and Applications

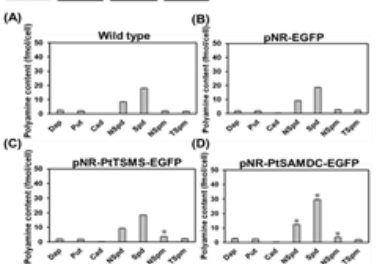
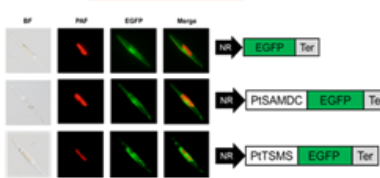
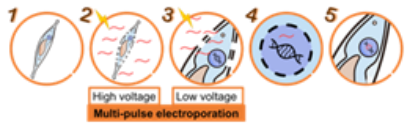


Development of Molecular Detection Technologies

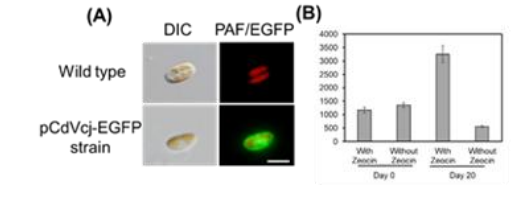
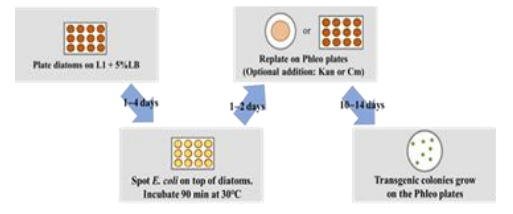
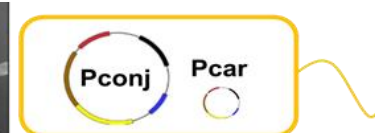
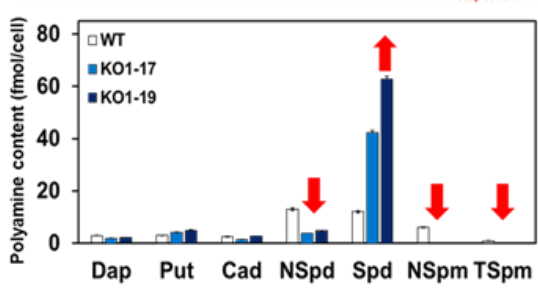
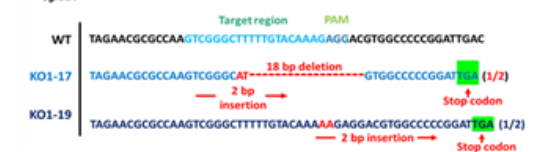
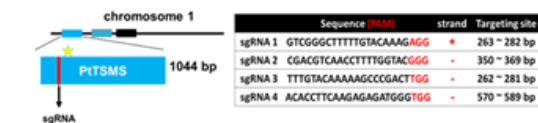


Diatom Molecular Genetics and Gene Editing

Overexpression



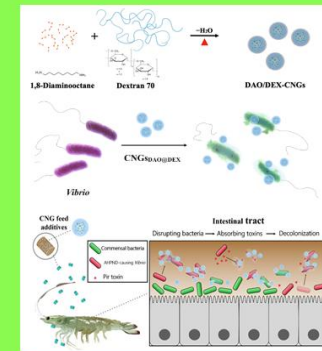
CRISPR-Cas9 Knock-out



The first lab to develop genetic modification for diatoms in Taiwan.

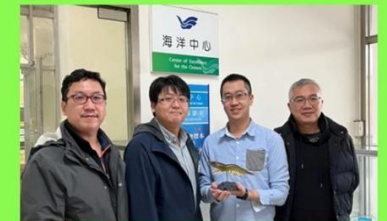
First herbal antibiotic alternative

Herbal Nanotech for Aquaculture

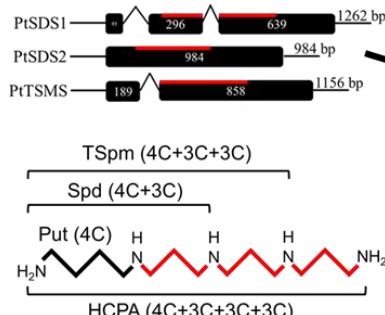
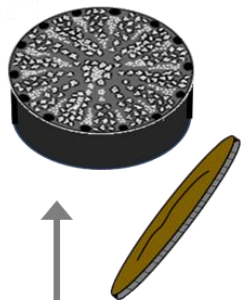


Best solution for antibiotic replacement

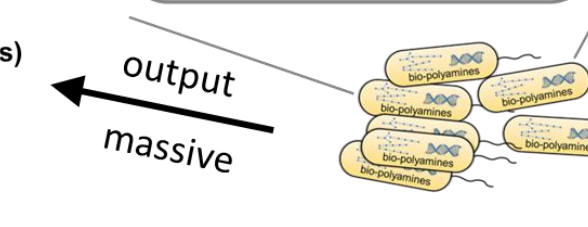
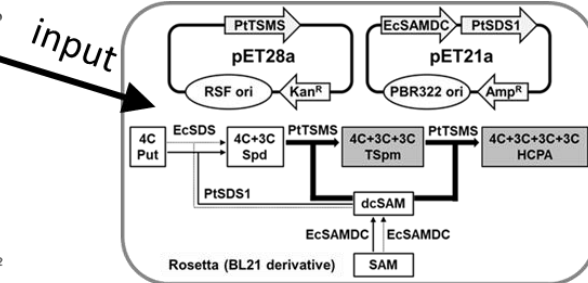
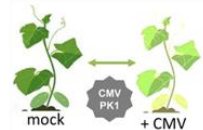
創新植生素技術讓動物遠離疾病威脅



Special Polyamine Metabolism Mechanisms and Applications



Longer uncommon PAs (LUPAs)
• Anti-virus



Synthetic biology for algae-based polyamine production

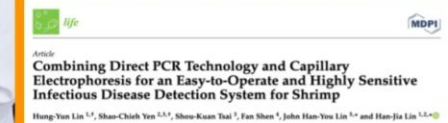
Developing novel enzymes and reagents for disease detection through industry collaboration

Molecular Detection Technology



Portable PCR technology

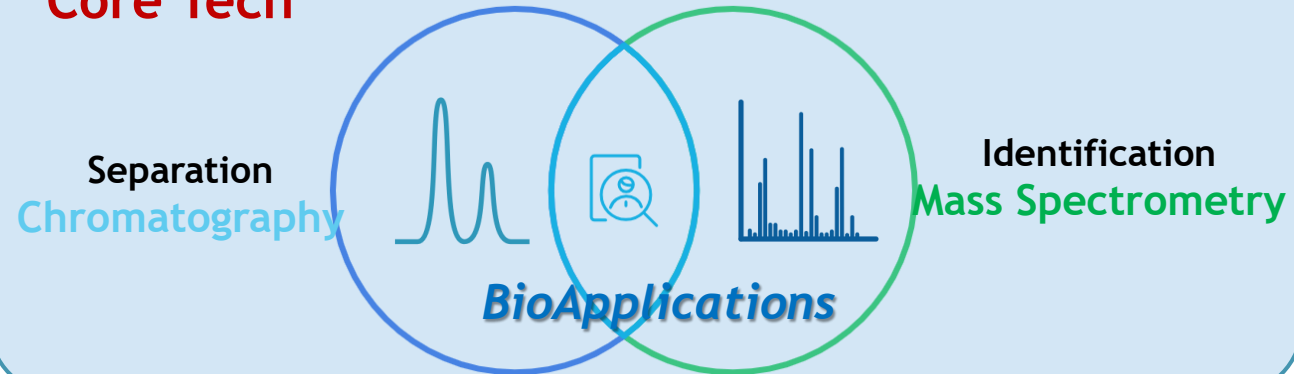
行動蝦病檢測確保生物安全



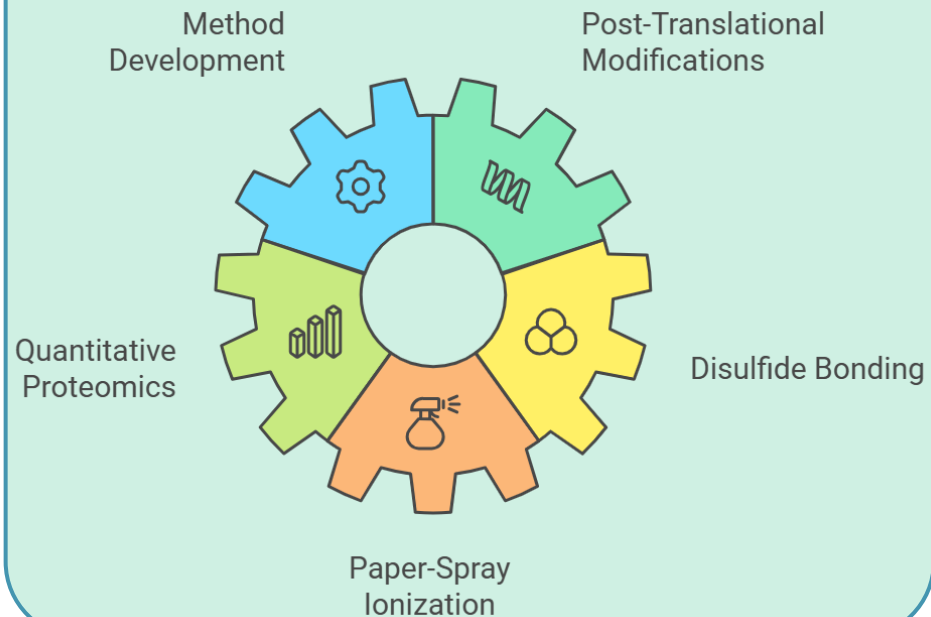
NTOU Bio-MS Lab (Pang-Hung Hsu)



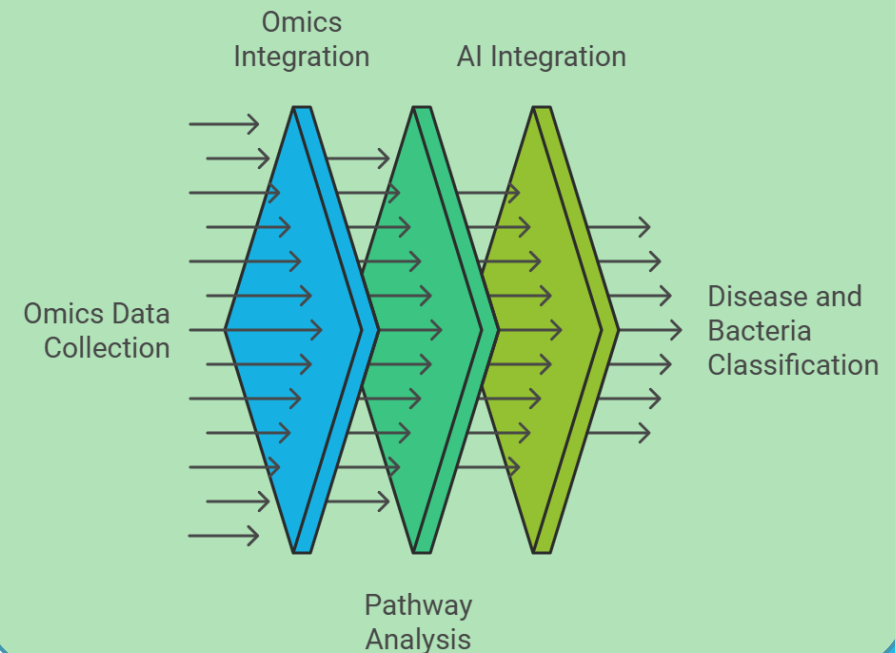
Core Tech



Established Platform



Ongoing Project



Biomaterials and Tissue Engineering Lab



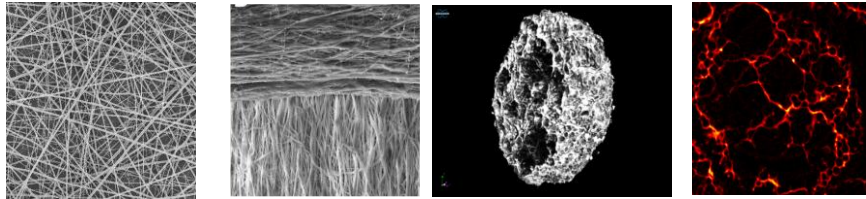
Principal investigator: Dr. Fu-Yin Hsu

E-mail: fyhsu@mail.ntou.edu.tw

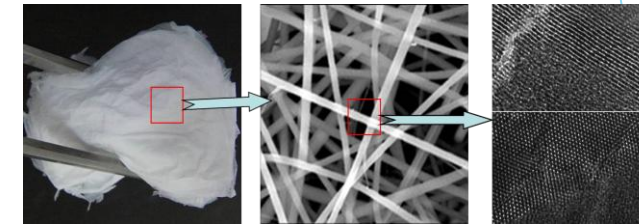
Telephone: 2462-2192# 5565

Research field: Biomaterials 、 Tissue engineer 、 Nanomedicine

3D Scaffold Fabrication Techniques Inspired by Extracellular Matrix Architecture



Functional Biomedical Composite Scaffolds for Tissue Engineering Applications

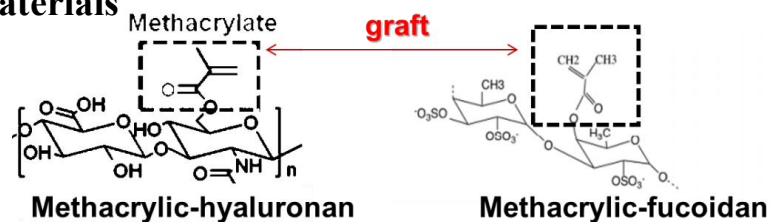


Bone graft



Drug carrier

Biomedical Applications of Marine-Derived Materials

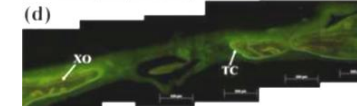
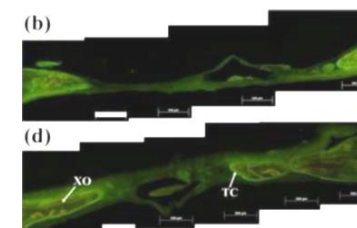
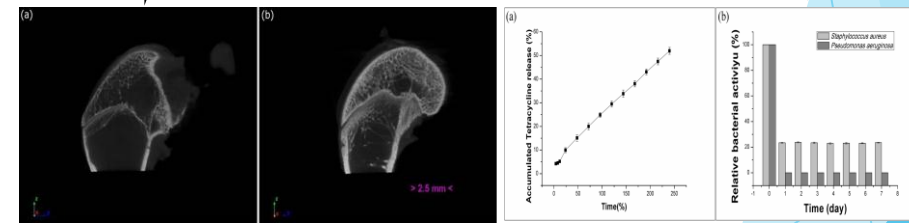


MHA-MFu precursor solution

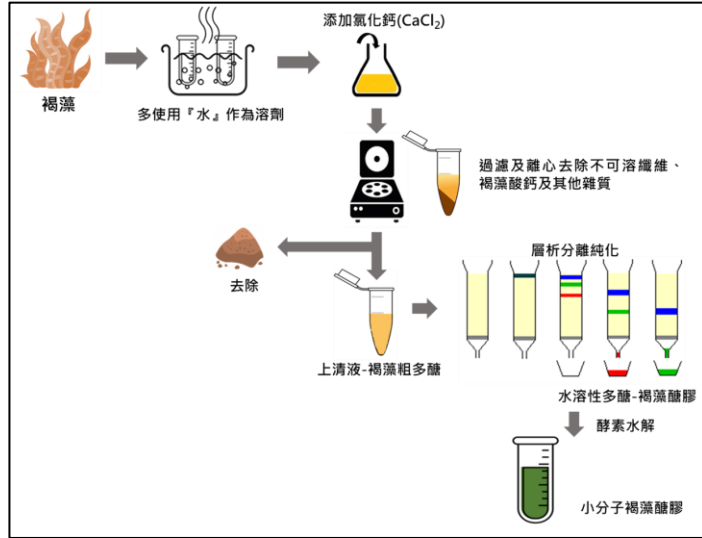
UV light
Lighting : 7 min



MHA-MFu hydrogel



Extraction Technology / Fermentation Technology / Technology Transfer



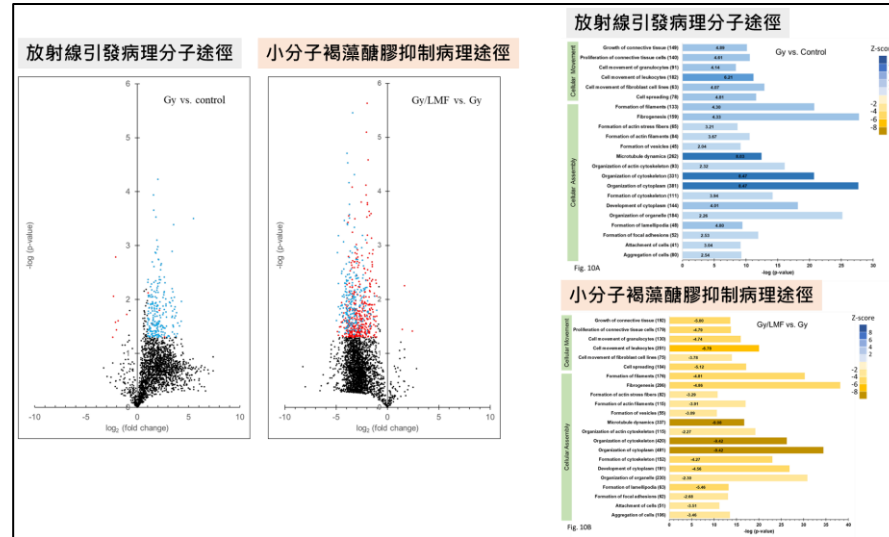
Brown seaweed
Active substance

Pai-An Hwang

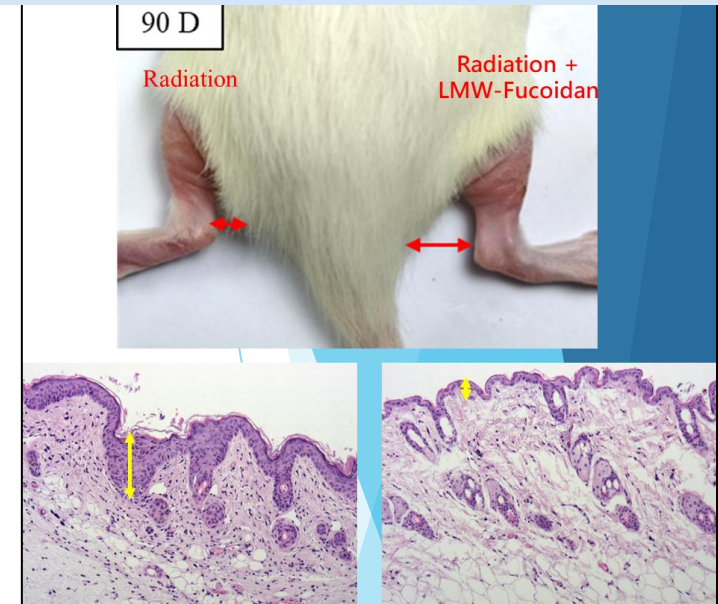
Natural Product Translational
Industrial Application Laboratory
amperehwang@mail.ntou.edu.tw



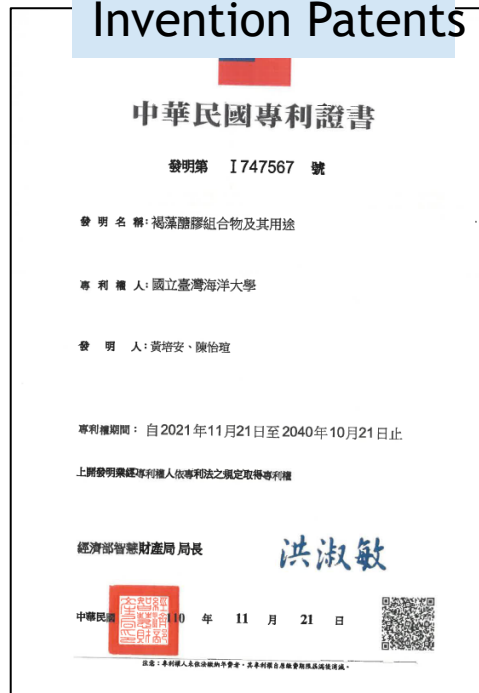
Proteomics, Metabolomics



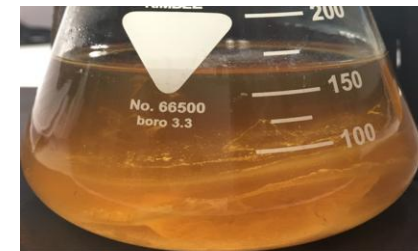
Animal Experiments / Efficacy Analysis



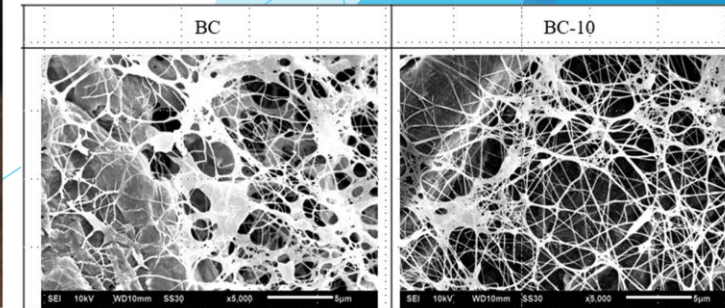
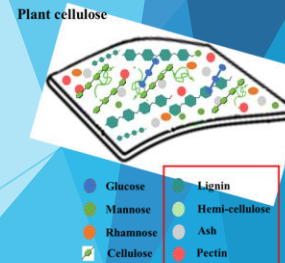
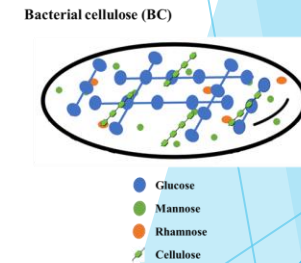
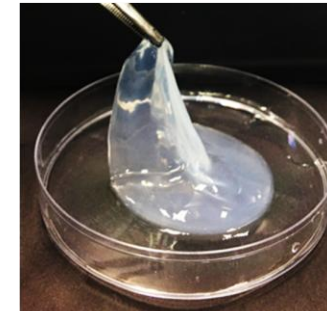
Invention Patents



Fermentation / Medical Material Applications



Bacterial cellulose membrane



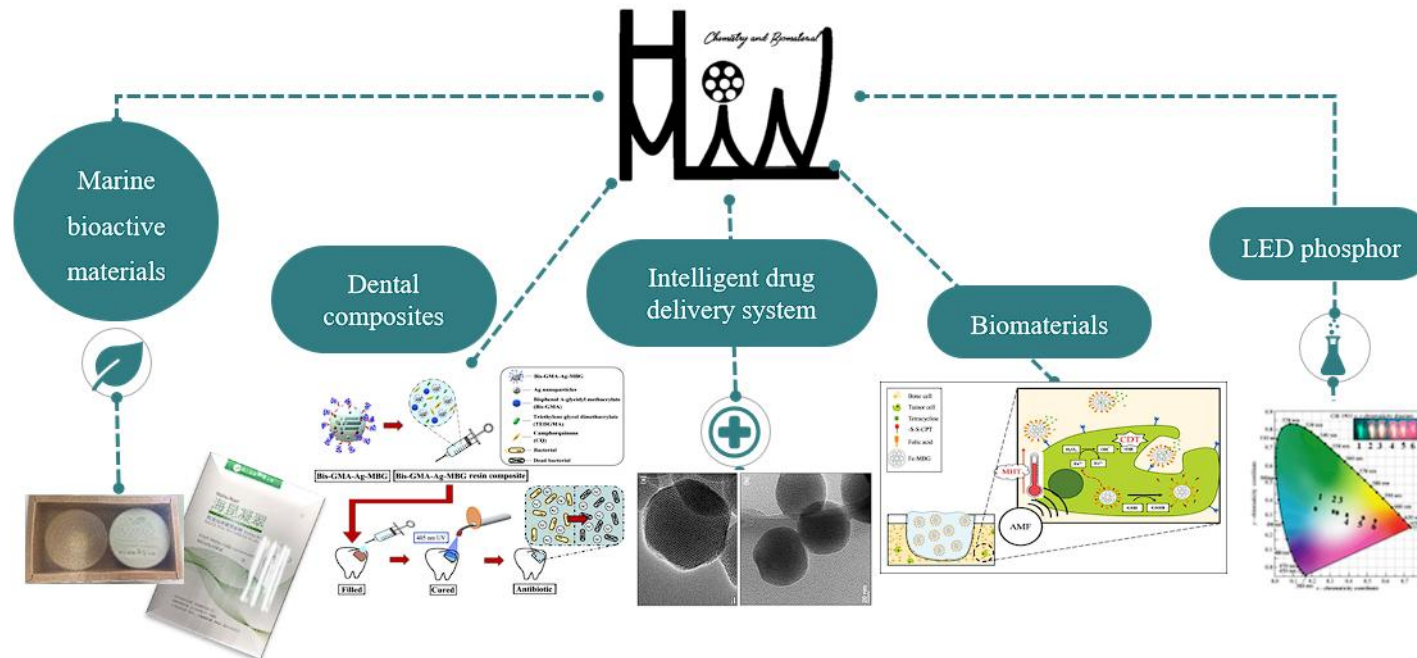
Multifunctional Intelligent Nanomaterials Laboratory



Name : Prof. Hsiu-Mei Lin

Expertise : Nanobiotechnology, intelligent drug delivery, biomedical materials, nano drug delivery, biomedical nanoimaging, phosphor, green chemistry, materials chemistry, marine bioactive substances, marine biotechnology development, applied cosmetics.

Email address : hmlin@mail.ntou.edu.tw



Self-Assembly Materials in Nano-Biomedical Applications Laboratory

Self-assembled materials for nanomedicine applications



Professor. Chih-Ching Huang

- B.Sc.: Chemistry, National Chung Cheng University, 1999
- M.Sc.: Chemistry, National Taiwan University, 2000
- Ph.D.: Chemistry, National Taiwan University, 2004
- Postdoc: Chemistry, National Taiwan University, 2006-2008
- Assistant Professor: Biotechnology, National Taiwan Ocean University, 2008-2011
- Associate Professor: Biotechnology, National Taiwan Ocean University, 2011-2014
- Professor: Life Science and Biotechnology, National Taiwan Ocean University, 2014-present

Research Directions :

- Antibacterial and Antiviral Materials
- Biomimetic Self-Assembly Materials
- Green Energy and Sustainable Materials
- Drug Delivery
- Nanozymes
- Nanomedicine and Immunotherapy

Contacts:

Email: huangcing@ntou.edu.tw

Laboratory Phone Number:

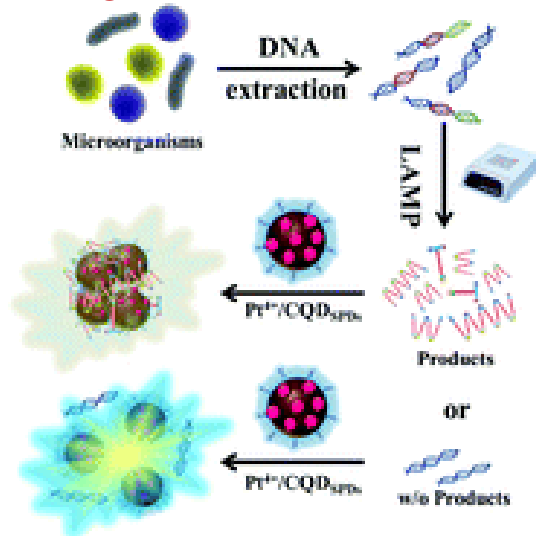
(02) 2462-2192 ext. 5524 (Laboratory) ; 5517 (office)

Position:

Laboratory: Humanities building B1
Office: Humanities building 710

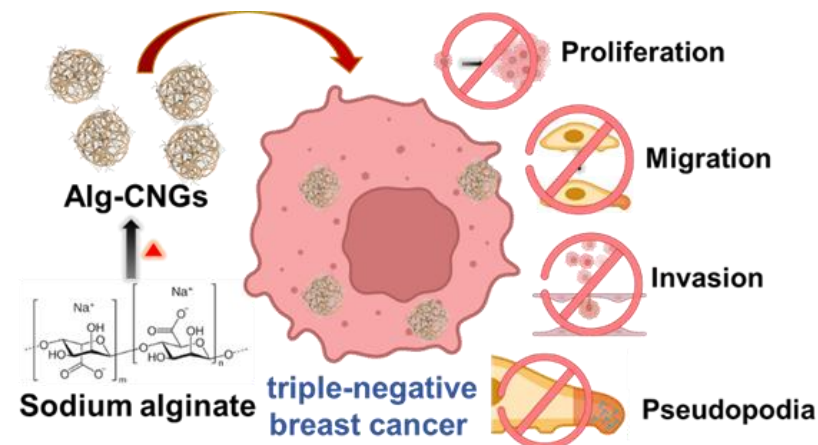
Research Achievements:

Rapid diagnosis of bacterial infections



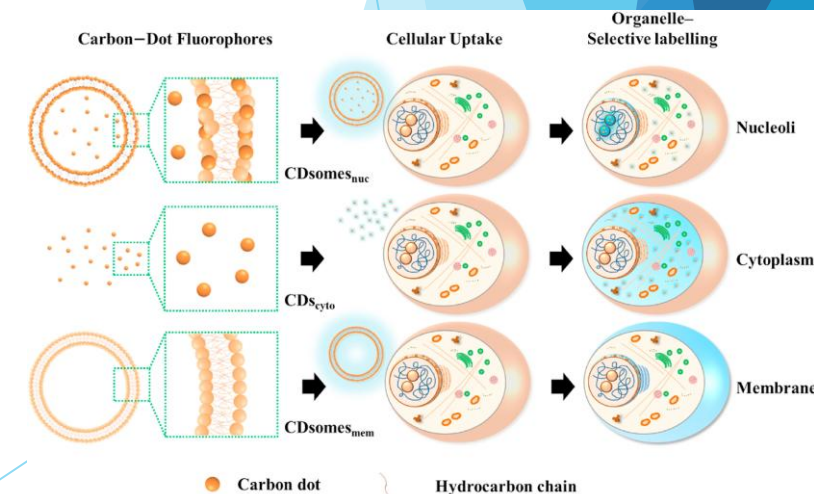
Platinum Ion-Mediated Interaction Between DNA and Carbon Quantum Dots for the Diagnosis of MRSA Infection

Tumor treatment



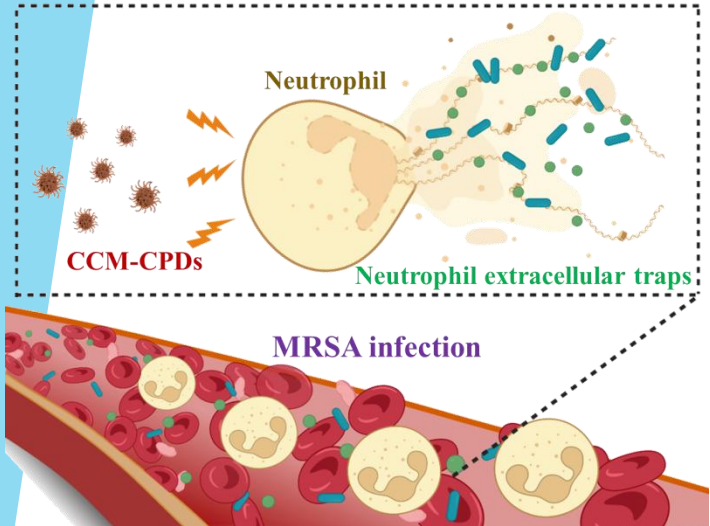
Carbonized Alginate Nanogels for the Inhibition of Growth and Metastasis of Triple-Negative Breast Cancer

Chemotherapy drug screening



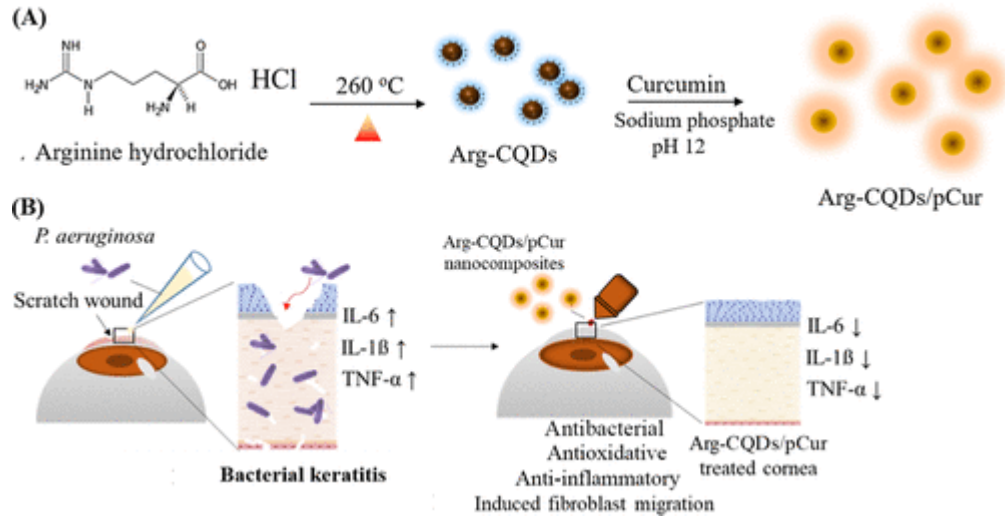
Evaluating Chemotherapy Response in Living Cells Using Selective Amphiphilic Carbon Dots

Immunotherapy for microbial infection



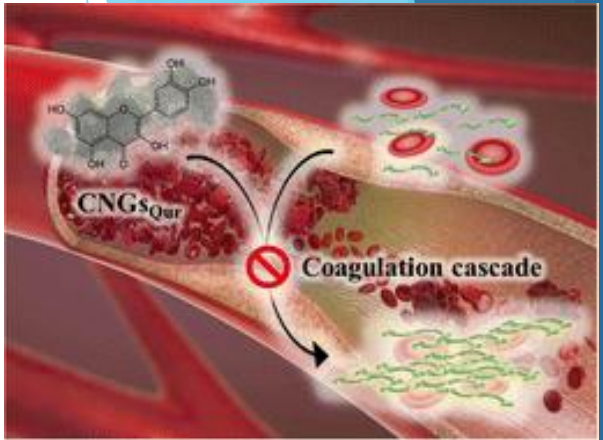
Polymeric Carbon Dots Enhance Neutrophil Extracellular Traps Against Bacterial Sepsis

Synergistic treatment for bacterial infections



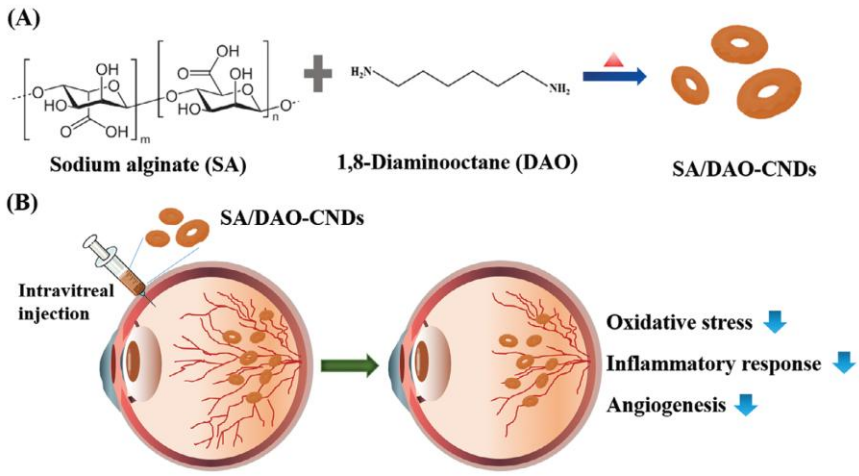
Polymeric Curcumin and Arginine-Derived Carbon Quantum Dots for Synergistic Treatment of Bacterial Infections

Cardiovascular disease treatment



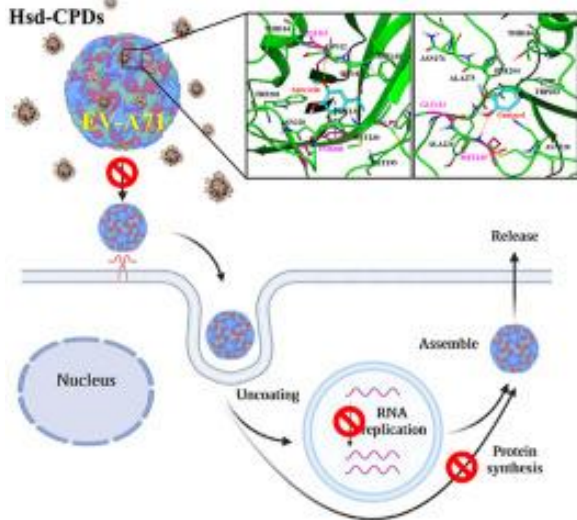
Quercetin Carbonized Nanogels for Anticoagulation

Abnormal angiogenesis treatment



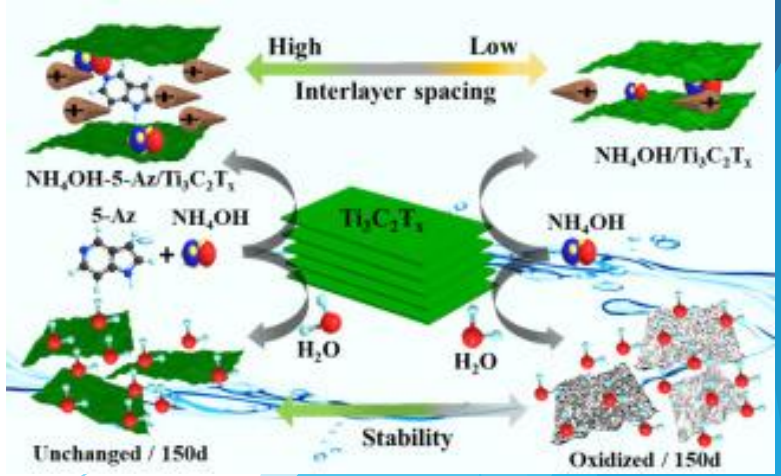
Carbonized Nano-Donuts for Neutralizing VEGF in Intravitreal Anti-Angiogenesis Therapy

Carbonized natural compounds inhibit viral infection



Antiviral Activity of Flavonoid Glycoside-Polymerized Carbon Dots Against Enterovirus A71

Development of green energy materials



Ammonia-Assisted Heterocyclic Amine to Soft Exfoliation and Interlayer Engineering on Ti₃C₂T_x MXene for the Fabrication of Stable Supercapacitors



王志銘 教授

新型結晶材料合成設計與應用實驗室

New Crystalline Materials Synthesis Design and Application Laboratory



Professor.
Chih-Min Wang

Positions :

- Professor, Department of Bioscience and Biotechnology, NTOU
- Deputy International Director / Head of International Teaching Group, Office of International Affairs, NTOU

Research directions :

- Synthesis of novel functional crystalline nanostructured materials
- Dye and heavy metal adsorption and detection
- Luminescent materials and device fabrication
- Electrochemical detection for food and environmental applications

Job Experiences :

- Assistant Research Scholar, Ministry of Science and Technology/National Central University
- Ph.D., Department of Chemistry, National Central University (Advisor: Dr. Kwang-Hwa, Lii)

Project:

- National Science and Technology Council Project for Excellent Junior Research Investigators
- National Science and Technology Council Individualized Multi-Year Plan
- Ministry of Culture Individualized Multi-Year Plan

Contacts :

✉ cmwang@ntou.edu.tw ☎ General Purpose Building 2 room 106 (02) 2462-2192 ext. 5514



Web Site

Important Research Achievements

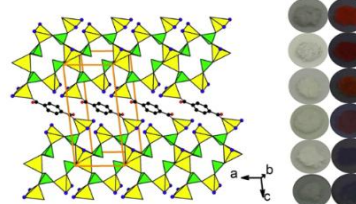
NTOU-2



NTOU-5



NTOU-4

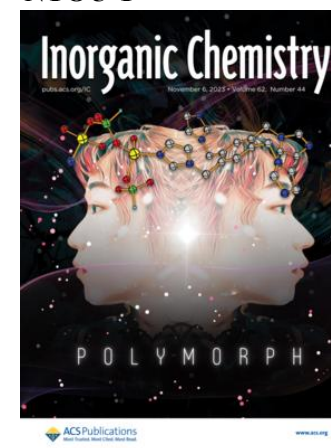


NTOU-6



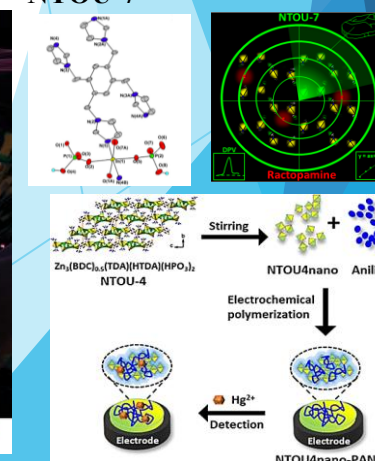
Crystalline materials with dual fluorescence/phosphorescence through unique structural transformation; Thermochromic and Solvatochromic luminescent sensors

NTOU-1



Detection of low-concentration food safety and biomolecules (Ractopamine, Tryptophan); Detection of environmental hazardous substances; Fabrication of composite electrodes

NTOU-7





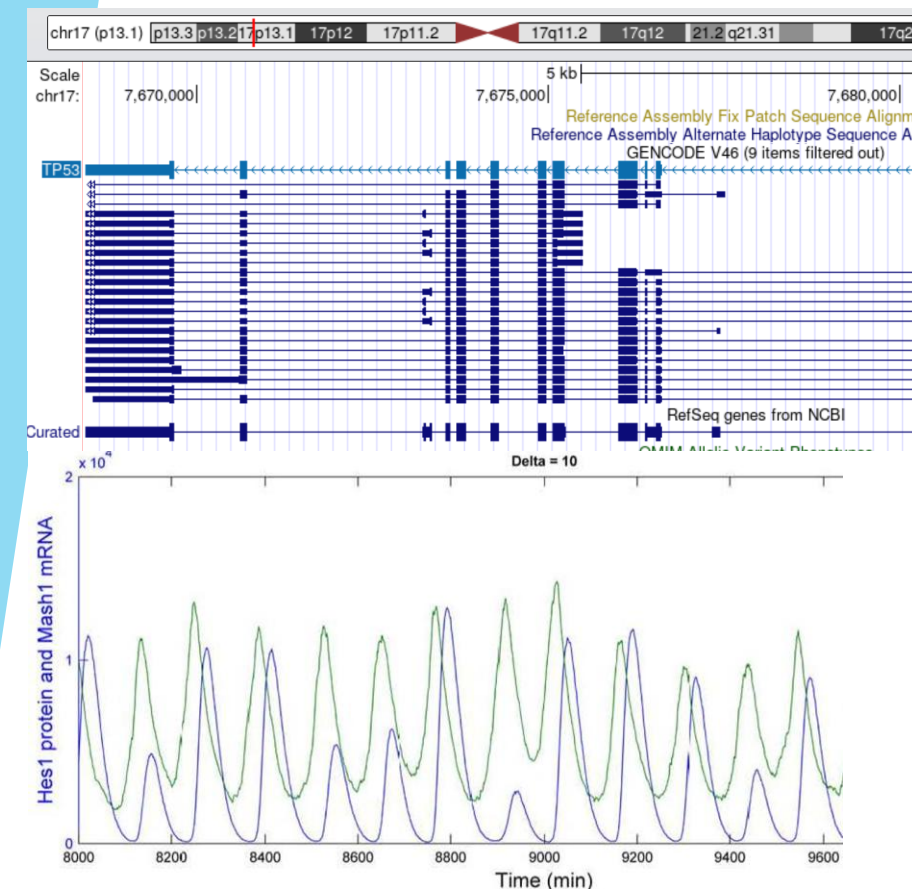
Translational Genomic Laboratory

Genomic Analysis and Artificial Intelligence

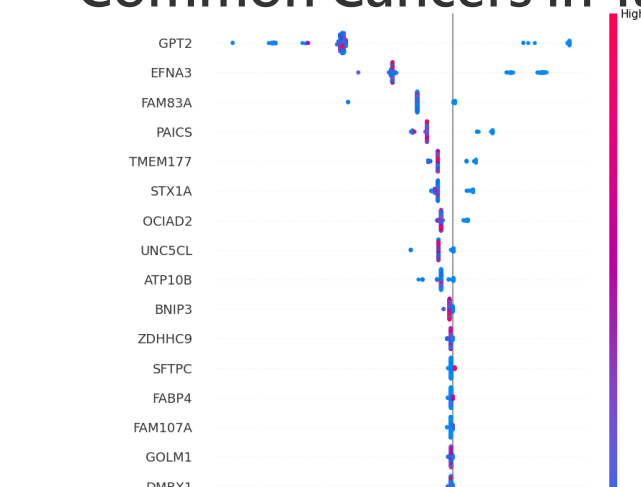
(Wen-Shyong Tzou)



• Exploration of Cancer Mutation Burden Pathways



• Biomarkers and Key Genes of Common Cancers in Taiwan



```
tasks: 469 total, 1 running, 468 sleeping, 0 stopped, 0 zombie
%Cpu(s): 62.5 us, 0.4 sy, 0.0 ni, 37.2 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 128748.3 total, 19153.5 free, 1606.3 used, 107988.5 buff/cache
MiB Swap: 8192.0 total, 8184.2 free, 7.8 used, 125923.3 avail Mem

PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
388265 paris 20 0 3792664 374876 306628 S 1994 0.3 2258:37 blastx
24 root 20 0 0 0 0 S 6.2 0.0 0:10.21 ksoftirqd/2
501892 paris 20 0 9648 4112 3196 R 6.2 0.0 0:00.01 top
1 root 20 0 171676 13660 8520 S 0.0 0.0 0:19.92 systemd
2 root 20 0 0 0 0 S 0.0 0.0 0:00.21 kthreadd
3 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 rcu_gp
4 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 rcu_par_gp
6 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 kworker/0:0H-kblockd
9 root 0 -20 0 0 0 I 0.0 0.0 0:00.00 mm_percpu_wq
10 root 20 0 0 0 0 S 0.0 0.0 0:14.66 ksoftirqd/0
11 root 20 0 0 0 0 I 0.0 0.0 3:47.58 rcu_sched
12 root rt 0 0 0 0 S 0.0 0.0 0:02.58 migration/0
13 root -51 0 0 0 0 S 0.0 0.0 0:00.00 idle_inject/0
14 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/0
15 root 20 0 0 0 0 S 0.0 0.0 0:00.00 cpuhp/1
16 root -51 0 0 0 0 S 0.0 0.0 0:00.00 idle_inject/1
17 root rt 0 0 0 0 S 0.0 0.0 0:02.59 migration/1
18 root 20 0 0 0 0 S 0.0 0.0 0:10.83 ksoftirqd/1

(base) paris@amd1:/nas/Lab/nematode/result/trinity_out_dir35
```

• Generative AI in Immune Therapy

