2022 細胞及分子生物學學會暨癌症醫學會聯合會議
(第 28 屆細胞及分子生物新知研討會)

2022 The Chinese Society of Cell and Molecular Biology and Taiwan Oncology Society Joint Meeting
(The 28th Symposium on Recent Advances in Cellular and Molecular Biology)

主辦單位

- 中華民國細胞及分子生物學學會
- 中華民國癌症醫學會
- 義守大學
- 中央研究院細胞與個體生物學研究所

協辦單位

- 科技部補助生命科學研究推動中心
- 財團法人健康科學文教基金會

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進入會議室，顯示名稱務必輸入姓名

◆ 1/14(五) 線上會議室

✓ 從會議鏈結加入

https://tsbmbtw27.webex.com/tsbmbtw27-tc/j.php?MTID=m0f91fd7d846136517fb66d9808683c4e

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會議號（存取碼）：2519 160 1161

會議密碼：Rp35s2ZwEMd

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會議密碼：mdUDh3tdA32

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會議密碼：UWzPmBPG353

◆壁報展示網頁 (開放時間 1/13~1/18)

✓ 網址：https://cscmbtw.wixsite.com/2022jointmeeting

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Chairperson 2 : Jang-Yang Chang, M.D., Ph.D.
(張俊彥特聘研究員兼所長 / 國家衛生研究院生技與藥物研究所)</td></tr>
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14:40~15:40	**Genetic Manipulation Towards Immune Tolerance: Approaches by Targeting on Transcription Factors and Cytokine Networking** *Huey-Kang Sytwu, M.D.,Ph.D.* (司徒惠康副院長 / 國家衛生研究院) (特聘研究員 / 國衛院感染症與疫苗研究所)
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16:10~16:35	**Basic and Clinical Research of SARS-CoV-2: Laboratory Diagnosis, Vaccine and Antiviral Developments** *Shin-Ru Shih, Ph.D.* (施信如主任 / 長庚大學新興病毒感染研究中心)(特聘教授 / 長庚大學醫學生物技術暨檢驗學系) (主任 / 長庚紀念醫院的臨床病毒實驗室)
16:35~17:00	**Microbiota and Human Diseases** *Chun-Ying Wu, M.D., Ph.D., MPH, LL.M., LL.B.* (吳俊穎教授兼所長 / 國立陽明交通大學生物醫學資訊研究所) (主任 / 臺北榮民總醫院醫學研究部轉譯研究科) (理事長 / 台灣微菌聯盟)
17:00~17:25	**Boosting T Cells with Bio/Nanomaterials for Immunotherapy and Antiviral Vaccination** *Che-Ming Jack Hu, Ph.D.* (胡哲銘副研究員 / 中央研究院生物醫學科學研究所)
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17:45~18:10	**Novel Regulatory Mechanisms of Tlrs-Mediated Inflammatory Responses** *Li-Chung Hsu, Ph.D.* (徐立中副教授 / 國立臺灣大學醫學院分子醫學研究所)
18:10~18:35	**Cancer Vaccine in the Era of Precision Medicine** *Ko-Jiunn Liu, Ph.D.* (劉柯俊研究員兼副所長 / 國家衛生研究院癌症研究所)
18:35~19:00	**Reflection of COVID-19 in the Real World** *Kao-Pin Hwang, Ph.D.* (黃高彬醫師兼副院長 / 中國醫藥大學附設醫院感染管制中心) (指揮官 / 衛生福利部傳染病防治醫療網)
19:30~21:30	***Joint Banquet***

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■ ***Saturday, January 16st, 2022***

Keynote Lecture II **Chairperson :** *Li-Tzong Chen, M.D., Ph.D.* (陳立宗講座教授 / 高雄醫學大學內科) (共聘特聘研究員 / 國家衛生研究院癌症研究所)	
08:00~09:00	**Paradigm Evolution of Systemic Therapy for Cancer - And Lessons from Liver Cancer** *Ann-Lii Cheng, M.D., Ph.D.* (鄭安理特聘教授 / 臺灣大學) (榮譽院長 / 臺大癌醫中心分院)
09:00~09:20	***Break***
Session III : Cancer, bench ↔ bedside **Chairperson 1 :** *Yuh-Shan Jou, Ph.D.* (周玉山特聘研究員 / 中央研究院生物醫學科學研究所) **Chairperson 2 :** *James Chih-Hsin Yang, M.D., Ph.D.* (楊志新院長 / 臺大癌醫中心分院) (教授 / 臺大醫學院腫瘤醫學研究所) (理事長 / 中華民國癌症醫學會)	
09:20~09:45	**PSPC1 is the Contextual Determinant of Pro-metastatic Switch in Cancer Progression** *Yuh-Shan Jou, Ph.D.* (周玉山特聘研究員 / 中央研究院生物醫學科學研究所)
09:45~10:10	**Premenopausal Breast Cancer** *Yen-Shen Lu, M.D., Ph.D.* (盧彥伸主任兼主治醫師 / 臺大醫院腫瘤醫學部)
10:10~10:35	**Multiomic Evolution of Cancer Cells During Metastatic Progression** *Muh-Hwa Yang, M.D., Ph.D.* (楊慕華校務長兼副校長 / 國立陽明交通大學)(講座教授 / 國立陽明交通大學臨床醫學研究所) (主任 / 臺北榮民總醫院腫瘤醫學部藥物治療科)
10:35~10:55	***Break***
10:55~11:20	**Tumor Microenvironment in Cholangiocarcinoma** *Ming-Huang Chen M.D., Ph.D.* (陳明晃醫師兼主任 / 臺北榮民總醫院腫瘤醫學部免疫治療中心)
11:20~11:45	**Targeting DUSP2-Mediated Extracellular Vesicle-VEGF-C Secretion Ameliorates Pancreatic Cancer Early Dissemination** *Shaw-Jenq Tsai, Ph.D.* (蔡少正講座教授 / 國立成功大學醫學院生理學科暨研究所)
11:45~12:30	***2022 Annual Meeting of the Members, Award Ceremony and Closing Remarks***
12:30~13:30	***Lunch***
13:30	***Departure***

Keynote Lectures

Genetic Manipulation Towards Immune Tolerance: Approaches by Targeting on Transcription Factors and Cytokine Networking

Huey-Kang Sytwu M.D., Ph.D.

Abstract

Insulin-dependent diabetes mellitus (IDDM) is a T cell-mediated autoimmune disease. To delineate the protective roles of some immune modulatory molecules, such as soluble decoy receptor 3 (DcR3), cytotoxic T lymphocyte antigen 4 (CTLA4), program death ligand 1 and 2 (PD-L1 and 2), heme oxygenase 1 (HO-1), and chemokine receptor D6 in the autoimmune process and to search for potential preventive and/or therapeutic targets in this disease, we have generated (a) insulin promoter (pIns)-sDcR3 transgenic non-obese diabetic (NOD) mice, (b) pIns-single chain anti-CTLA4 transgenic NOD mice, (c) pIns-single chain anti-4-1BB transgenic NOD mice, (d) pIns-PD-L1 transgenic NOD mice, (e) pIns-HO-1 transgenic NOD mice, and (f) pIns-D6 transgenic NOD mice and demonstrated their immunomodulatory potential and underlying mechanisms. Meanwhile, to explore the modulatory potential of interleukin-12, 23 and 27 on autoimmune diabetes, we have generated following transgenic, knockout and knockdown NOD mice: (1) Th1 and Th2 doubly transgenic (2) IL-12 knockout (3) IL-23 knockdown (4) IL-27 knockdown NOD mice. Our results revealed that 20% IL-12-deficient NOD mice still developed autoimmune diabetes, the diabetic incidence of IL-23 knockdown NOD mice is lower than that of control littermates, and the number and percentage of Th1 cells are dramatically decreased and Th17 cells are increased in IL-27 knockdown mice, indicating a differential role of IL-12 cytokine family in modulating Th1 and Th17 cell development during autoimmune diabetogenic process. Previously, we demonstrated that overexpression of B lymphocyte-induced maturation protein-1 (Blimp-1) in T cells decreases IL-21 expression and suppresses autoimmune diabetes, whereas, lacking Blimp-1 in T cells upregulates IL-21 and results in severe colitis and autoimmune encephalomyelitis in NOD mice. Here, we further illustrate that Blimp-1 represses IL-21 by reducing chromatin accessibility and evicting an IL-21 activator, c-Maf on its promoter. Moreover, an IL-21-accelerating autoimmune diabetogenesis in SUMO-defective c-Maf transgenic mice can be overridden by Blimp-1 overexpression-mediated reduction of permissive chromatin structures at Il21 locus. Making full use of these unique mouse strains, we are quantitatively and qualitatively investigating the immunopathogenic mechanisms of autoimmune diabetes and providing valuable information for the development of novel immunotherapies.

Paradigm Evolution of Systemic Therapy for Cancer - And Lessons from Liver Cancer

Ann-Lii Cheng, M.D., Ph.D.

Abstract

In the past 2 decades, we have witnessed a stunning evolution of systemic cancer therapy. At the turn of this century, molecular targeted therapy (MTT), led by the discovery of imatinib for the treatment of chronic myeloid leukemia, took over chemotherapy to become an overwhelming new modality of drugs in cancer. However, in just 10 years (2000-2010), except for a few cancer types such as lung and hematology malignancies, MTT quickly reached a bottleneck, and the development of systemic therapy was replaced by modern immunotherapy (2010-). The basic concepts and inherent problems of each major modality of cancer treatment, using liver cancer as an example, as well as the perspective for future development will be discussed.

Invited Lectures

Session I

S1-1

Respiratory Dormancy in T315I-Mutated BCR-ABL Myeloid Leukemia Cells and Vulnerability to Metabolic Targeting

Zee-Fen Chang, Ph.D.

Abstract

T315I mutation of Bcr-Abl in chronic myeloid leukemia (CML) leads to therapeutic resistance. Here, we showed dNTP pools in wild-type Bcr-Abl-transformed myeloid progenitor cells significantly lower than those in T315I-Bcr-Abl-transformed cells. Therefore, Bcr-Abl (wt) cells exhibited higher replication stress than T315I cells and were more vulnerable to treatment with JMF4073, an inhibitor against pyrimidylate kinases. We showed that T315I mutation skewed Bcr-Abl-stimulated signals in coordinating proliferation and new protein synthesis, resulting in metabolic changes including more severe impairment of mitochondrial OXPHOS with the increases in reductive carboxylation, NADPH, and glutathione levels. Blocking mitochondrial pyruvate carrier (MPC) with UK-5099 decreased reductive carboxylation and glutathione production in T315I cells, thus leading to the increases in replication stress and susceptibility to JMF4074 treatment. Unlike conventional anti-nucleotide inhibitors and the inhibitor of T315I Bcr-Abl kinase, JMF4073 treatment has an advantage in less toxicity to myeloid progenitor cells. In vivo therapeutic results further suggest the potential of combining JMF4073 with UK-5099 in eradicating T315I-BCR-Abl-transformed cells.0

S1-2

Development of Cyclin-Dependent Kinase Inhibitors

Chia-Chi (Josh) Lin, M.D., Ph.D.

Abstract

Uncontrolled cellular proliferation, mediated by dysregulation of the cell-cycle machinery and activation of cyclin-dependent kinases (CDKs) to promote cell-cycle progression, is one of the cancer hallmarks. Clinical implementation of first-generation, pan-CDK inhibitors, including flavopiridol, designed to inhibit this proliferation, was originally hampered by a narrow therapeutic index and lack of testing in the optimal patient populations. The development of the second-generation, CDK2 inhibitors, including dinaciclib, paved the way for the more specific CDK inhibitors. The emergence of the third-generation, selective CDK4/6 inhibitors, including ribociclib, abemaciclib and palbociclib, has enabled tumor types in which CDK4/6 has a pivotal role in the G1-to-S-phase cell-cycle transition to be targeted with improved effectiveness, and fewer adverse effects. Results of the phase III trials in patients with advanced estrogen receptor (ER)-positive breast cancer have demonstrated a substantial improvement in survival, with a well-tolerated toxicity profile. Mechanisms of acquired resistance to CDK4/6 inhibitors are beginning to emerge that might enable rational post-CDK4/6 inhibitor therapeutic strategies to be identified. Extending the use of CDK4/6 inhibitors beyond ER-positive breast cancer is challenging and will likely require (1) biomarkers that are predictive of a response, and (2) the use of combination therapies to optimize CDK4/6 targeting.

S1-3

How Hair Follicle Stem Cells Communicate with the External Environment

Sung-Jan Lin, M.D., Ph.D.

Abstract

Stem cell (SC) activity is subject to non-cell-autonomous regulation from the local microenvironment, or niche. In adaption to varying physiological conditions and the ever-changing external environment, the SC niche has evolved with multifunctionality that enables SCs to detect these changes and to communicate with remote cells/tissues to tailor their activity for organismal needs. The cyclic growth of hair follicles is powered by the activation of hair follicle stem cells (HFSCs). We categorize HFSC niche cells into 3 functional modules, including signaling, sensing and message-relaying. Signaling modules regulate HFSC activity through short-range cell-cell contact or paracrine effects. Sensing macules capacitate HFSC niche to detect tissue injury and mechanical cues while message-relaying modules transmit remote signals to HFSC niche. We use the pilosympathetic niche as an example to demonstrate how different component cells are integrated into a functional regulatory module to regulate HFSC activity and how such niche structures are maintained throughout the life. I will also highlight how such an internal niche is connected through the brain to the external environment, enabling HFSCs to communicate with and respond to the external environmental changes.

S1-4

Nuclear Receptors Promote Telomere Interaction in Cancer

Liuh-Yow Chen, Ph.D.

Abstract

Orphan nuclear receptors (NRs), such as COUP-TF1 and COUP-TF2, associate with telomeres in telomerase-negative ALT (alternative lengthening of telomeres) cancer cells through binding variant telomeric sequences. However, the link between telomeric association of NRs and ALT cancer development remains to be elucidated. Here, we investigated the role of NRs in initiating telomere clustering/interaction, which is a process that regulates telomere recombination in ALT cancer cells. Using a standardized workflow for telomere foci number and telomere intensity quantification, initially we observed lower telomere numbers in BJ fibroblast cells expressing the estrogen receptor fused with telomere binding factor TRF1 or TRF2. Similarly, tethering COUP-TF1 and COUP-TF2 to the telomeres in BJ cells via fusion with TRF1 resulted in reduced telomere foci, suggesting that orphan NRs promote telomere-telomere interactions. In this meeting, I will discuss the roles of PML bodies and the cell cycle controls in telomere interaction. The impacts of NRs-induced telomere interaction on telomere maintenance will be discussed.

S1-5

Evaluation of Homologous Recombination Deficiency in Cancer: The Rationale and Translational Insights

Chien-Feng Li, M.D., Ph.D.

Abstract

DNA double strand breaks (DSB) are the most cytotoxic DNA lesions. DSB triggers chromosomal aberration and cell death if repair machinery can not be activated. The ability to restore DSBs depends on the function of the homologous recombination repair (HR) system, which copies the respective undamaged, homologous DNA of the sister chromatid to reconstruct the corrupted double strand during S and G2 phase. Of note, the HR status of tumors is relevant for treatment selection, as its defect predicts sensitivity to platinum drugs and PARP inhibitors. Accordingly, testing for aberrations of HR repair as a predictive biomarker of therapy response has become an area of particular clinical interest. Few if any testing has been developed to evaluate HR status in cancer which significantly impairs the clinical accessibility for such testing. Furthermore, little is known about the HR deficiency status in Taiwanese high-grade serous ovarian cancer (HGSOC). We thus tried to evaluate HR deficiency status in our HGSOC cohort by using a newly designed NGS-based LOH Scoring Assay. Through this study, we not only preliminarily evaluated the prevalence of *BRCA1/2* mutation and HR deficiency in our HGSOC cohort but confirmed the clinical utility of the newly designed NGS-based LOH Scoring Assay.

S1-6

TFEB-Dependent Autophagy Supports Cancer Proliferation in the Absence of Centrosomes

Won-Jing Wang, Ph.D.

Abstract

The centrosome is a nonmembranous organelle within the cell that serves as the microtubule-organizing center as well as the template for cilia formation. Centrosome amplification is a phenomenon frequently found in human cancers, and thus centrosome depletion has been proposed as a potential therapeutic strategy in cancer treatment. However, despite being afflicted with a lack of centrosomes, many cancer cells are reported to undergo proliferation in the absence of centrosomes, suggesting there are limits to the usage of this treatment. Here, we analyze the cellular response to centrosome depletion and find that centrosome loss activates the autophagy pathway through discovery of the transcription factor EB (TFEB) as a novel polo-like kinase 4 (PLK4) substrate. Mechanistically, centrosome loss inactivates PLK4 and results in TFEB dephosphorylation, which subsequently promotes TFEB nuclear translocation and transcriptional activation of autophagy- and lysosome-related genes. By depleting centrosomes in autophagy- and TFEB-deficient cells, we demonstrate that the elevated autophagic activity induced by centrosome loss plays an important role in supporting acentrosomal cancer proliferation. Our finding also potentially provides an improved anti-cancer strategy by simultaneously inducing centrosome loss and inactivating the TFEB-autophagy-lysosome pathway.

Session II

S2-1

Basic and Clinical Research of SARS-CoV-2: Laboratory Diagnosis, Vaccine and Antiviral Developments

Shin-Ru Shih, Ph.D.

Outline of the talk:

Laboratory diagnosis:

As the COVID-19 pandemic continues, the causative virus, SARS-CoV-2 continues to evolve. SARS-CoV-2 is the strain of coronavirus, a kind of RNA virus which has been known to mutate frequently. This talk will discuss viral genetic diversity and its impact on virus stability and antigenicity. First, investigation of the genomic variation of SARS-CoV-2 isolates in Taiwan and comparison of their evolutionary trajectories with the global strains will be presented. Like other isolates from different countries, D614 G change in viral spike (S) protein becomes dominant. The S-G614 variant was found to be more stable than the S-D614 variant. The spike protein of the S-G614 variant had better binding ability with ACE2 receptor than that of the S-D614 variant after storage at −20°C up to 30 days. Stability and infectivity are related to each other, and higher stability of S-G614 than that of S-D614 may contribute to fast viral spread of the S-G614 variant. Other mutations within receptor binding sites (RBD), e.g., N501Y, E484K and K417D will be discussed too regarding their changes in ACE2 binding and antigenicity.

Detection of neutralization antibodies:

A quantitative serological test for detecting neutralization antibodies of SARS-CoV-2 is critical for vaccine development. We have established standard neutralization test (NT) at BSL-3 laboratory and pseudo-virus system at BSL-2 Laboratory. Moreover, a two-variable generalize additive model analysis of binding was developed as a surrogate NT test. The coefficient of determination between predicted and NT values was as high as 0.903. This novel assay serves as an alternative to quantify SARS-CoV-2 neutralization antibody and is more accessible for research or clinical use in a general laboratory.

Dissecting viral-host interaction and development of antivirals:

Our team applied the EditCell Virology platform (genome-wide CRISPR-based system) to screen host factors that are important for RNA virus replication. We identified ACSL-4 as a crucial factor not only for coronaviruses but also for flaviviruses and enteroviruses infections. Based on this finding, we also identified two FDA-approved drugs targeting ACSL-4 protein, which are able to decrease the viral load of the above-mentioned RNA viruses, including SARS-CoV-2, the only cause of the COVID-19 pandemic.

S2-2

Microbiota and Human Diseases

Chun-Ying Wu, M.D., Ph.D., MPH, LL.B., LL.M.

Abstract

Human intestinal tract harbors a complex microbial community with approximately 100 trillion cells, about 10 times of the number of human cells and 100 times of the number of human genes. This complex microbial community is called gut microbiota. The development of next generation sequencing technologies make it possible to explore the composition of gut microbial community, most of them are not cultivable. Human microbiota can be considered as the second genome of human beings.

Gut microbiota is stabilized in the first years after birth via the vertical transmission from parents and close contract with family members. Environmental factors, such as diet, medication, exercise, etc., further shape gut microbiota characteristics thereafter. Each subject's gut microbiota is unique, but changes with time. Gut microbiota interacted with human immune system and triggers several inflammatory related pathways, which are associated with many human diseases, such as obesity, metabolic syndrome, cancers, autoimmune diseases, cardiovascular diseases, neurological and psychiatric diseases, etc.

Fecal microbiota transplantation (FMT) is the translocation of gut microbiota to treat human diseases by re-colonization of normal gut microbiota in patients. A couple of human diseases have been treated successfully by FMT in recently randomized clinical trials. FMT has been demonstrated to be superior than traditional antibiotics treatment in patients with refractory pseudomembranous colitis, infected by Clostridium difficile. FMT is also approved to be effective in some subset of patients with inflammatory bowel diseases. There are many ongoing clinical trials to examine the efficacy and safety of FMT in treating obesity, metabolic diseases, psychiatric diseases, autoimmune diseases, as well as cancers.

Gut microbiota plays important roles in shaping and treating human diseases. Exploring the complicated interactions between gut microbiota and human diseases will provides many new diagnostic and therapeutic methods for human diseases and will be the most exciting fields of 21st century.

S2-3

Boosting T Cells with Bio/Nanomaterials for Immunotherapy and Antiviral Vaccination

Che-Ming Jack Hu, Ph.D.

Abstract

The role of T cells, particularly cytotoxic CD8 T cells, has long been recognized as a critical component for effective suppression and resolution of viral and oncological disease, yet many biological and technological barriers deter the development of T cell-based immunotherapies and vaccines. We demonstrate the use of synthetic materials such as polymers and hydrogels for constructing novel virus-like nanoparticles and artificial antigen presentation cells for stimulating the immune system. These bioinspired immunomodulatory systems have been applied for antiviral vaccination and anticancer immunotherapy, and they exhibit multiple attributes and performance comparable to their natural counterparts. Towards virus mimicry, we demonstrate the development and preparation of polymeric nanoshells with structural semblance to virus capsids. These biodegradable nanoshells are capable of encapsulating combinatorial encapsulants and proves to be a highly effective and versatile vaccine platform upon coencapsulation of antigens and immunologic adjuvants. Nanoparticle vaccines prepared with the nanoshells have been shown to confer strong immunity towards development of vaccines against emerging disease, univeral influenza vaccine, and precision anticancer vaccine. Towards cellular mimicry, on the other hand, we have developed an intracellular hydrogelation technique that preserves the biological activity of plasma membrane, yielding highly robust cell-like biomaterials. Using the cellular gelation technique, we've prepared a new class of antigen presenting cell derived directly from live dendritic cells. The gelated dendritic cells can be retain T cell stimulating functionality and are capable to expanding antigen-specific lymphocytes both ex vivo and in vivo. The virus-like nanoparticles and gelated cells provide synthetically flexible platforms for further design modifications towards precise immune modulation.

S2-4

Novel Regulatory Mechanisms of Tlrs-Mediated Inflammatory Responses

Li-Chung Hsu, Ph.D.

Abstract

The mammalian immune system is comprised of two branches: innate and adaptive immunity. During microbial infections, innate immune cells use pattern-recognition receptors, including Toll-like receptors (TLRs), to detect conserved microbial molecules termed pathogen-associated molecular patterns, and then mount a defense response to clear bacteria and control the initiation and determination of the adaptive immune response. Excess activation of pro-inflammatory responses has been associated with many inflammatory diseases including sepsis and infectious diseases. However, the precise mechanisms underlying the regulation of mammalian immune system remain fragmentary. We recently identified ZNRF1, a RING finger E3 ubiquitin ligase, which regulated TLR4-activated immune responses in bone marrow macrophages by modulating caveolin-1 (CAV1) expression. We demonstrated that ZNRF1 physically interacts with CAV1 in response to lipopolysaccharide and mediates ubiquitination and degradation of CAV1. Depletion of ZNRF1 in macrophages caused an increase in the expression of CAV1, which led to decreased GSK3β activation resulting in enhanced production of pro-inflammatory cytokines and inhibition of anti-inflammatory cytokine IL-10. Importantly, mice with myeloid-specific ZNRF1 deficiency were significantly resistant to both LPS- and cecal ligation and puncture-induced septic death. In addition, we also found that ZNRF1 is involved in regulation of endosomal TLRs (TLR3/TLR7/TLR9) signaling in macrophages and plasmacytoid dendritic cells through a distinct mechanism. Our findings reveal ZNRF1 as a new regulator of TLRs-driven inflammatory responses and may shed light on treatments for inflammation-related diseases.

S2-5

Cancer Vaccine in the Era of Precision Medicine

Ko-Jiunn Liu, Ph.D.

Abstract

In recent years, treatment of cancer patients with immune checkpoint inhibitors and Chimeric-antigen-receptor-T cells has achieved dramatic results in certain cancers. The concept of cancer therapy has also started to switch from attacking cancer cells directly to modulating the tumor microenvironment and rebuilding an anti-cancer immune system. Dendritic cell (DC) is the most important antigen-presenting cell in the body and is the commander of critical immune responses. DCs loaded with tumor antigens were used as therapeutic cancer vaccines to treat cancers and effective anti-tumor immunity in many animal tumor models and clinical trials were reported. The US FDA has approved a dendritic cell-based vaccine for the treatment of prostate cancer. In our previous research, we have conducted four phase-I clinical trials with autologous DCs pulsed with different types of tumor antigens, including tumor lysate, synthetic peptide containing CD8 T cell epitope, and recombinant protein. We have demonstrated that it is feasible and safe to immunize cancer patients with these DC vaccines. In many patients, DC-based cancer vaccines were shown to generate or boost specific T cell responses, and clinical benefits were observed in certain patients. Currently, with the progress of precision and personal medicine, many investigators including us are exploring the strategy of applying next-generation sequencing to identify mutations in tumors of individual patient, deducing mutation-derived new tumor antigens (neoantigens), and vaccinating patients with neoantigens or neoantigen-loaded DCs. In addition, attempt to modify tumor microenvironment including in situ vaccination is also an attractive therapeutic approach. With these new strategies, we shall be able to successfully enforce anti-tumor immunity and provide clinical benefits for cancer patients in the future.

S2-6

Reflection of COVID-19 in the Real World.

Kao-Pin Hwang, Ph.D.

Abstract

COVID-19 in children has been on the mild rise in Taiwan . While children are capable of getting the virus and causing COVID-19. Most children have mild symptoms or no symptoms. They seem to get it less often than adults. In the long run, COVID-19 in children looks like a respiratory tract infection, not severe than respiratory syncytial virus infection, and influenza. Taiwan is one of the world's leading producers of high biological technology. The contribution of disease (COVID-19) findings in etiology, diagnostics, therapeutics, and vaccines was lacking. Science and technology for human health leading quality excellence are the direction of stringing, and the goal that is pursued.

Session III

S3-1

PSPC1 is the Contextual Determinant of Pro-Metastatic Switch in Cancer Progression

Yuh-Shan Jou, Ph.D.

Abstract

Based on integrated genomic analysis of aberrant expressed cancer genes associated with patient prognosis and located at chromosomal alteration region, we identified a master driver gene called PSPC1 (paraspeckle component 1) to promote cancer epithelial-to-mesenchymal transition (EMT) and stemness residing at the minimal overlapping locus of chromosome 13q12.11. In addition to promoting Epithelial-to-mesenchymal transition (EMT) and stemness in cancer cells and spontaneous cancer models, we found that PSPC1 is the contextual determinant of dichotomous TGF-β1 function. PSPC1 upregulation could interact with Smad2/3 and highjack Smad2/3 target genes from apoptotic and homeostatic genes in normal cells switch to tumor progressive oncogenes in cancer cells (Nat Cell Biol. 2018). Moreover, PSPC1 is also the contextual determinant of oncogenic subcellular localizations of nucleocytoplasmic shuttling proteins such as PTK6 and β-catenin in human HCC cells (Nat Commun. 2019). The C-terminal interacting domain of PSPC1 could be an innovative dual inhibitor to interact with PSPC1 and PTK6, to abrogate the oncogenic PSPC1/PTK6/β-catenin axis, and to inhibit metastasis and prolong the survival of HCC orthotopic mice for potential improvement of cancer therapy.

S3-2

Premenopausal Breast Cancer

Yen-Shen Lu, M.D., Ph.D.

Abstract

Our previous research found that Taiwan's young breast cancer has a significantly higher luminal molecular classification (hormone receptor-positive, HER2-negative). Our first collaborative study confirmed that compared with the US SEER database, breast cancer in other countries in East Asia is the same as that in Taiwan, and the incidence is younger, and unlike SEER data, young breast cancer in East Asia is mainly luminal; immigration to the United States East Asian American women also have the same pathological features, that is to say, in addition to environmental factors, genetic factors also have a considerable impact. Although there has been a new breakthrough in the development of drugs for postmenopausal women with breast cancer, the last listed drug for estrogen receptor-positive breast cancer drugs in premenopausal women was actually 20 years ago (1996), which was ignored. In our translation studies, it was found that the PI3K inhibitor BMK120 or BYL719 combined with the standard drug tamoxifen in premenopausal women can produce a good therapeutic and multiplying effect. Based on this, we designed a three-group randomized Phase II clinical trial plan (B-YOND study), supported by the Novartis. During the conduction of B-YOND study, CDK 4/6 inhibitor combined with hormone therapy for women with metastatic breast cancer after menopause was found to be the most significant advances in the field of breast medicine in recent years. We further designed a large-scale international phase III clinical trial by using CDK 4/6 inhibitors combined with hormone therapy for women with metastatic breast cancer before menopause (MONALEESA 7 study). The results showed that the progression-free survival and overall survival of ER+ HER2- premenopausal advanced breast cancer could be significantly improved by this new strategy. This prescription was approved by the US FDA in 2018 for the first-line use of estrogen receptor-positive metastatic breast cancer in premenopausal women. It is an important breakthrough in the past 20 years for this patient population.

S3-3

Multiomic Evolution of Cancer Cells During Metastatic Progression

Muh-Hwa Yang, M.D., Ph.D.

Abstract

Epithelial-mesenchymal transition (EMT) has been recognized for its essential role in cancer progression. Increasing evidence suggests the existence of an intermediate status between epithelial and mesenchymal phenotypes, and the appearance of hybrid epithelial-mesenchymal (E/M) phenotype offers a more plastic status for cancer cells to adapt the stressful environment for metastasis. Cancer cells in the hybrid E/M state are easier to switch between epithelial and mesenchymal states and migrate collectively with retained intercellular junctions. However, the understanding of the control of the hybrid E/M state is limited. We previously demonstrated that acetylation of the EMT transcriptional factor Snail switches it from a transcriptional repressor to an activator through recruiting different co-factors. Acetylated Snail promotes collective migration of head and neck squamous cell carcinoma (HNSCC), indicating the potential role of Snail for engendering a hybrid E/M state. We recently used the spatial transcriptomic technique to demonstrate the metastatic evolution in paired HNSCC samples. A distinct transcriptomic profile was noted in the region-of-interest (ROI) from inner tumors, invasive fronts, and metastatic tumors. Regarding the expression of the major metastatic regulators, a gradual increase of *CTNNB1* was noted from inner ROI to invasive fronts and metastatic tumors; in contrast, a reduced expression of the EMT regulators such as *SNAI1* and *ZEB1* was shown from the inner ROI to invasive fronts and metastasis. The expression of the EMT markers were also distinct between the inner tumors and invasive fronts/metastatic tumors: a higher level of the late-EMT markers such as fibronectin and CD44 was shown in the metastatic tumors but not in the inner ROI. Our findings suggest the existence of the intermediate E/M state in clinical tumor samples. Further studies for elucidating the mechanism controlling the cells in the hybrid state are mandatory.

S3-4

Tumor Microenvironment in Cholangiocarcinoma

Ming-Huang Chen, M.D., Ph.D.

Abstract

Cholangiocarcinoma is the second most common hepatobiliary malignant tumor besides liver cancer, grows from bile duct epithelial cells. However, surgery is the only hope for most patients with cholangiocarcinoma, but the effectiveness of treatment is not outstanding. Even though other methods of treatment, such as chemotherapy and radiation therapy, have limited effects. The immunotherapy and precision treatment have become the latest expectations of patients. Here, we analyzed the TCGA and GEO database to classify the cold and hot tumor using hierarchical clustering. The MCP counter results demonstrated that two genes, MS4A1 and CD79A, could identify the hot and cold tumor subgroups after TCGA data training and similar results show in GEO database. We also performed the tissue array for 105 cholangiocarcinoma tissue samples and found patients with high expression levels of MS4A1 or CD79A have better disease free survival (DFS) and progression free survival (PFS) (p value =0.0131 and 0.0017). In addition, we tested the tertiary lymphoid structures (TLS) signatures in tissue array sections, which is associated with the present of MS4A1 and CD79A. The results shows that patients who received the immunotherapy with TLS signatures have longer overall survival (OS) and PFS (p value =0.017 and 0.006). Collectively, B cell lineages or TLS could be an ideal biomarker to lead the clinical treatment and wish can broader applications in other diseases.

S3-5

Targeting DUSP2-Mediated Extracellular Vesicle-VEGF-C Secretion Ameliorates Pancreatic Cancer Early Dissemination

Chu-An Wang[1] Ph.D. and Shaw-Jenq Tsai[2] Ph.D.

Abstract

Early dissemination of pancreatic ductal adenocarcinoma (PDAC) is one of the reasons for causing the extremely low survival rate. We investigated the mechanism of PDAC early metastasis and the involvement of extracellular vesicles (EVs). We found that the major lymphangiogenic factor, vascular endothelial growth factor-C (VEGF-C) is associated with EVs secreted from pancreatic cancer cells. Secretion of EV-VEGF-C is negatively regulated by dual specificity phosphatase-2 (DUSP2), the master negative regulator of MAPK signaling. DUSP2 suppression in PDAC cancer cells results in enhanced vesicle trafficking and EV-VEGF-C production. Tissue-specific knockout of Dusp2 in mouse pancreas recapitulates PDAC phenotype with elevated EV-VEGF-C in sera of mice. Administration of novel histone deacetylase inhibitor abrogated loss-of-DUSP2-mediated EV-VEGF-C secretion, lymphangiogenesis, lymphovascular invasion, and tumor growth. These data suggest that blocking loss-of-DUSP2-mediated EV-VEGF-C secretion may inhibit early dissemination of pancreatic cancer.

癌症醫學會 *Special Program*

Time	Title / Author	Page
11:00~11:30	Introduction and Methodology of Homologues Recombination Deficiency (HRD) Test 姓名：林柏翰醫師　單位：臺大醫院	36
11:30~12:00	Application and Clinical Utility of Homologues Recombination Deficiency (HRD) Test in Ovarian Cancer 姓名：江盈澄醫師　單位：臺大醫院	37
12:00~12:30	Companion Diagnostics and Precision Medicine Revolution in Clinical Oncology 姓名：陳昭儒醫師　單位：高醫	38
13:30~14:00	Biomarkers for Patient Selection of Immune Checkpoint Inhibitors 姓名：林季宏醫師　單位：臺大癌醫中心分院	39
14:00~14:30	Hereditary Breast and Ovarian Cancer Genetic Counseling Clinic Protocals 姓名：彭夢婷醫師　單位：長庚醫院	40

11:00~11:30

Introduction and Methodology of Homologues Recombination Deficiency (HRD) Test

Po-Han Lin, Ph.D.

Abstract

Homologous recombination is a DNA repair pathway of clinical interest due to homologous recombination repair deficiency (HRD) is a frequent feature of high-grade serous ovarian, fallopian tube and peritoneal carcinoma (HGSC). Moreover, HRD is associated with sensitivity to poly-ADP ribose polymerase (PARP) inhibitors therapy, which makes its measurement critical in HGSC treatment.

HRD can be defined in multiple ways with diverse methodologies, leading to varied methods to identify HRD in tumors. Therefore understanding existing and new methods to measure HRD is important to their appropriate use in clinical trials and practice. We will introduce the methodology of HRD measurement from defining the term of 'HRD test' and provide an overview of the biological rationale with the level of evidence supporting currently available HRD tests.

11:30~12:00

Application and Clinical Utility of Homologues Recombination Deficiency (HRD) Test in Ovarian Cancer

Ying-Cheng Chiang, M.D., Ph.D.

Abstract

According to the statistics of the Ministry of Health and Welfare, the incidence of ovarian cancer increased in recent years and the mortality rate is highest in all gynecologic malignancies in Taiwan. The prognostic factors for ovarian carcinomas include tumor stage, histological subtype, degree of malignancy, residual tumor after surgical intervention and the response to chemotherapy. Recently, target therapy or immunotherapy provides new choices, but the prices are expensive. It is important to select suitable ovarian cancer patients for these drugs, which is also the direction of precision medicine.

Homologous recombination repair deficiency (HRD), a defect in DNA repair by hampered homologous recombination repair (HRR), is enriched in cancers of ovary, prostate, pancreas and breast and associated with sensitivity to poly-ADP ribose polymerase (PARP) inhibitors therapy.

HRD testing provides an opportunity to optimize PARP inhibitor use, however, clinical application remains controversial due to diverse methodologies. Currently, the clinical validity of HRD tests in ovarian cancer is well assessed in terms of PARP inhibitor benefit by clinical trials evidence supporting the use of BRCA mutation testing and two commercially available assays that also incorporate genomic instability. These available HRD tests are useful to inform treatment selection but with limitations. We will summarize the clinical trials evidence of available HRD tests, highlight the feature of each assay, and discuss the application and clinical utility of HRD test in ovarian cancer.

12:00~12:30

Companion Diagnostics and Precision Medicine Revolution in Clinical Oncology

Chao-Ju Chen, M.D., Ph.D.

Abstract

In the postgenomic era, medicine and healthcare are undergoing dramatic changes. Molecular-based technologies such as microarray, real-time PCR and sequencing technologies are key drivers of this rapid transformation. Recently, these technologies have been translated from laboratory to our daily healthcare practice and several genetic companion diagnostics tools were available for clinical uses. A companion diagnostic device can be in vitro diagnostic device that provides information that is essential for the safe and effective use of a corresponding therapeutic product. The path to companion diagnostics started in 1998 with the approval of the trastuzumab and the immunohistochemistry assay HercepTest for the detection of human epidermal growth factor receptor 2 (HER2) protein overexpression in breast tumors demonstrated the value of the drug–diagnostic parallel development model. Currently, there are more than 30 FDA approved companion diagnostic tests, eg: “BRACAnalysis CDx” with Olaparib in breast, ovarian and pancreatic cancers, “cobas EGFR Mutation Test v2” with erlotinib, gefitinib and osimertinib in non-small cell lung cancer, “FoundationOne CDx” with several tyrosine kinase inhibitors and monoclonal antibodies in variable cancers etc. The majority of drugs with associated companion diagnostic tests are cancer treatments targeting specific mutations. Establishing novel approaches to study cancer target therapy, personalize treatment to each patient, and achieve greater outcomes is crucial in the era of precision medicine.

13:30~14:00

Biomarkers for Patient Selection of Immune Checkpoint Inhibitors

Ching-Hung Lin, M.D., Ph.D.

Abstract

Although immune checkpoint inhibitors (ICIs) therapy has been approved as a antitumor therapy for several tumor types and some patients can achieve sustained responses. However, most patients do not benefit. Therefore, more and more attention has been paid to the identification and development of predictive biomarkers for the response of ICIs. For tumor specific indications, PD-L1 immunohistochemistry (IHC) is the most common companion diagnostic test. For tumor agnostic indications, high tumor mutation burden (TMB), and deficient DNA mismatch repair and high microsatellite instability dMMR/MSI-H are approved for ICIs. In this presentation, I will review these companion diagnostic tests and briefly introduce other potential biomarkers for ICIs.

14:00~14:30

Hereditary Breast and Ovarian Cancer Genetic Counseling Clinic Protocals

Meng-Ting Peng, M.D.

Abstract

Hereditary breast cancer accounted for 5-10% of breast cancer patients. The most common one is HBOC (hereditary breast and ovarian cancer syndrome), which is resulted from germline BRCA mutation. Germline BRCA mutation is autosomal dominant. A female patient harboring BRCA1 mutations has around 80% breast cancer risks and 40% ovarian cancer risks in her lifetime, while 40% and 20% in BRCA2 mutant BC patients. Identifying this population is the most important issue. Qualified testing and a thoughtful genetic counseling are necessary. In this talk, I will mention about key issues of genetic counseling in clinical practice.

The 2022 Dr. Chien-Tien Hsu's Award

No.01

Multiresolution Imaging Using Bioluminescence Resonance Energy Transfer Identifies Distinct Biodistribution Profiles of Extracellular Vesicles and Exomeres with Redirected Tropism

Anthony Yan-Tang Wu, Yun-Chieh Sung, Yen-Ju Chen, Steven Ting-Yu Chou, Vanessa Guo, Jasper Che-Yung Chien, John Jun-Sheng Ko, Alan Ling Yang, Hsi-Chien Huang, Ju-Chen Chuang, Syuan Wu, Meng-Ru Ho, Maria Ericsson, Wan-Wan Lin, Chantal Hoi Yin Cheung, Hsueh-Fen Juan, Koji Ueda, Yunching Chen, and Charles Pin-Kuang Lai

Abstract

Extracellular particles (EPs) including extracellular vesicles (EVs; membranous) and exomeres (non-membranous) are cell released and nano-sized (range from <50 nm to 10,000 nm) particles which ferry abundant of biological information, such as DNAs, RNAs, and proteins. EPs facilitate inter-/ intra-cellular communication and are involved in diseases progression (e.g., tumor metastasis). However, their spatiotemporal dynamics in organisms have remained largely unresolved due to the lack of a suitable method. A bioluminescence resonance energy transfer (BRET)-based reporter, PalmGRET, is created to enable labeling of multiple-EP subpopulations ranging from exomere (<50 nm) to small (<200 nm) and medium and large (>200 nm) EVs with high specificity to inner membrane of EVs. PalmGRET is a fusion protein with membrane anchoring signal (palmitoylation) at N-terminus of BRET pair, and BRET pair is composed of a bright (>150-fold brighter than firefly luciferase) and a glow type (~2hr signal half-life) Nanoluc fused to C-terminus of eGFP. BRET shares a similar concept with fluorescence resonance energy transfer (FRET) but instead uses luciferase as the donor. The emission light from luciferase-catalyzed substrate serves as endogenous excitation light to the closely paired (<10nm) recipient fluorophore. PalmGRET emits robust, sustained signals and allows the visualization, tracking, and quantification of the EPs from whole animal to nanoscopic EP activity under different imaging modalities, including bioluminescence, BRET, and fluorescence. Cancer metastasis is the leading cause of the patient mortality, and cancer-derived EV/Ps have been reported to have” organ tropism” and act as the precursors to educate the microenvironment of future metastatic niches for facilitating the tumor metastasis. However, the whole-body EP distribution are seldom reported during EP tropism study due to the only focus on targeted organ. Using PalmGRET, it is shown that EPs released by lung metastatic hepatocellular carcinoma (HCC) exhibit lung tropism with varying distributions to other major organs in immunocompetent mice. It is further demonstrated that modification of protein contents on EP membrane leads to the reduced HCC-EP distribution to the lung and yields distinct biodistribution profiles. It is anticipated that EP-specific imaging, quantitative assays, and detailed characterization in animal are a starting point for more accurate and comprehensive animal study of EP biology and therapeutic design.

No.02

Drosophila Npas4 Negatively Regulates Jak/Stat Signaling to Constraint the Invasive Cell Population

Jhen-Wei WU, Chueh-Wen Wang, Ruo-Yu Chen, Liang-Yi Hung, Yu-Chen Tsai, Yu-Ting Chan, Yu-Chiuan Chang, Anna C-C Jang

Abstract

Cell migration is a critical process for embryonic development and cancer metastasis. How the epithelial cells are selected and adapt migratory cell fate remains elusive. To decipher the underlying mechanism, we apply border cells (BCs), a small group of cells disseminating from the epithelium and migrating through germ cells in *Drosophila* oogenesis, as a model to study collective cell movement. In a forward genetic screen, we found that overexpression of *dysfusion (dysf)* severely impeded BC recruitment which is governed by the JAK/STAT signaling. Conversely, loss of *dysf* led to extra migratory BCs. Interestingly, Dysf gain of function dramatically impairs the phosphorylation, transcriptional activity, and nuclear import of STAT protein. The ectopic BC phenotype caused by JAK or Upd overexpression can be suppressed by overexpression of UAS-*dysf*, indicating that *dysf* negatively regulates JAK/STAT signaling. Interestingly, Dysf protein is resided at the nuclear membrane of all germline and follicle cells but specifically reduced in BCs upon migration. Moreover, when BCs reach the destiny, oocyte, their Dysf becomes undetectable. To elucidate how Dysf regulates STAT nuclear transport, we carried out a biochemical screen to seek for proteins interactingwith endogenous knock-in tagged Dysf. We found that Pendulin, a member of the Importin-alpha protein family, interact with Dysf. We also found that mammalian homologue of Dysfusion (NPAS4) negatively regulates the STAT3 and cancer cell migration. Therefore, we propose that *dysf* may determine the size of border cell clusters by regulating JAK/STAT signaling.

No.03

Sensory Cilia as the Achilles Heel of Nematodes when Attacked by Carnivorous Mushrooms

Ching-Han Lee, Han-Wen Chang, Ching-Ting Yanga, Niaz Wali,
Jiun-Jie Shie, and Yen-Ping Hsueh

Abstract

Fungal predatory behavior on nematodes has evolved independently in all major fungal lineages. The basidiomycete oyster mushroom *Pleurotus ostreatus* is a carnivorous fungus that preys on nematodes to supplement its nitrogen intake under nutrient-limiting conditions. Its hyphae can paralyze nematodes within a few minutes of contact, but the mechanism had remained unclear. We demonstrate that the predator-prey relationship is highly conserved between multiple *Pleurotus* species and a diversity of nematodes. To further investigate the cellular and molecular mechanisms underlying rapid nematode paralysis, we conducted genetic screens in *Caenorhabditis elegans* and isolated mutants that became resistant to P. ostreatus. We found that paralysis-resistant mutants all harbored loss-of-function mutations in genes required for ciliogenesis, demonstrating that the fungus induced paralysis via the cilia of nematode sensory neurons. Furthermore, we observed that *P. ostreatus* caused excess calcium influx and hypercontraction of the head and pharyngeal muscle cells, ultimately resulting in rapid necrosis of the entire nervous system and muscle cells throughout the entire organism. This cilia-dependent predatory mechanism is evolutionarily conserved in *Pristionchus pacificus*, a nematode species estimated to have diverged from *C. elegans* 280 to 430 million y ago. Thus, *P. ostreatus* exploits a nematode-killing mechanism that is distinct from widely used anthelmintic drugs such as ivermectin, levamisole, and aldicarb, representing a potential route for targeting parasitic nematodes in plants, animals, and humans.

No.04

Endothelial Reprogramming Stimulated by Oncostatin M Promotes Inflammation and Tumorigenesis in Vhl-Deficient Kidney Tissue

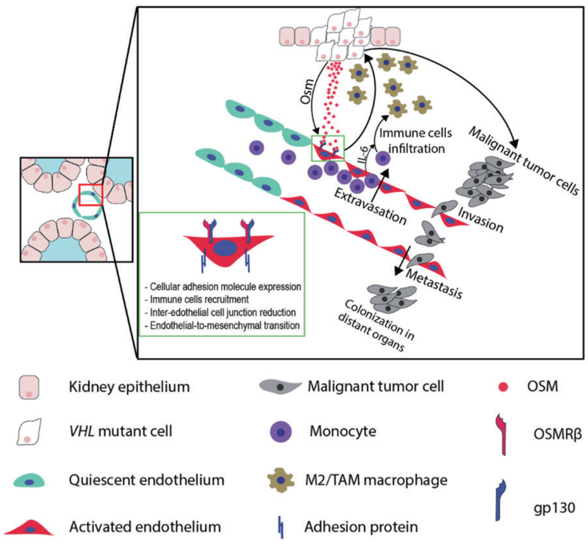
Hieu-Huy Nguyen-Tran, Thi-Ngoc Nguyen, Chen-Yun Chen, and Tien Hsu

Abstract

Clear-cell renal cell carcinoma (ccRCC) is the most prevalent subtype of renal cell carcinoma (RCC), and its progression has been linked to chronic inflammation. About 70% of the ccRCC cases are associated with inactivation of the von Hippel–Lindau *(VHL)* tumor-suppressor gene. However, it is still not clear how mutations in *VHL*, encoding the substrate-recognition subunit of an E3 ubiquitin ligase that targets the alpha subunit of hypoxia-inducible factor-α (HIFα), can coordinate tissue inflammation and tumorigenesis. We previously generated mice with conditional *Vhlh* knockout in kidney tubules, which resulted in severe inflammation and fibrosis in addition to hyperplasia and the appearance of transformed clear cells. Interestingly, the endothelial cells (EC), although not subject to genetic manipulation, nonetheless showed profound changes in gene expression that suggest a role in promoting inflammation and tumorigenesis. Oncostatin M (OSM) mediated the interaction between *VHL*-deficient renal tubule cells and the ECs, and the activated ECs in turn induced macrophage recruitment and polarization. The OSM-dependent microenvironment also promoted metastasis of exogenous tumors. Thus, OSM signaling initiates reconstitution of an inflammatory and tumorigenic microenvironment by *VHL*-deficient renal tubule cells, which plays a critical role in ccRCC initiation and progression.

Significance: A novel mechanism of cross-talk between ECs and *VHL*-deficient kidney tubules that stimulates inflammation and tumorigenesis is discovered, suggesting OSM could be a potential target for ccRCC intervention.

Graphical abstract



No.05

Micrornas Mediate Precise Control of Spinal Interneuron Populations to Exert Delicate Sensory-To-Motor Outputs

Shih-Hsin Chang, Yi-Ching Su, Mien Chang, Jun-An Chen

Abstract

Although the function of microRNAs (miRNAs) during embryonic development has been intensively studied in recent years, their postnatal physiological functions remain largely unexplored due to inherent difficulties with the presence of redundant paralogs of the same seed. Thus, it is particularly challenging to uncover miRNA functions at neural circuit level since animal behaviors would need to be assessed upon complete loss of miRNA family functions. Here, we focused on the neural functions of MiR34/449 that manifests a dynamic expression pattern in the spinal cord from embryonic to postnatal stages. Our behavioral assays reveal that the loss of MiR34/449 miRNAs perturb thermally induced pain response thresholds and compromised delicate motor output in mice. Mechanistically, MiR34/449 directly target Satb1 and Satb2 to fine-tune the precise number of a sub-population of motor synergy encoder (MSE) neurons. Thus, MiR34/449 fine-tunes optimal development of Satb1/2^{on} interneurons in the spinal cord, thereby refining explicit sensory-to-motor circuit outputs.

No.06

Improving the Reproducibility, Accuracy, and Stability of an Electrochemical Biosensor Platform for Point-Of-Care Use

Lung-Chieh Chen[§], Erick Wang[§], Chun-San Tai[§], Yuan-Chen Chiu, Chang-Wei Li, Yan-Ren Lin, Tsung-Han Lee, Ching-Wen Huang, Jung-Chih Chen, Wen Liang Chen
§ These authors contribute equally to this work

Abstract

Electrochemical biosensors possess numerous desirable qualities for target detection, such as portability and ease of use, and are often considered for point-of-care (POC) development. Label-free affinity electrochemical biosensors constructed with semiconductor manufacturing technology (SMT)-produced electrodes and a streptavidin biomediator currently display the highest reproducibility, accuracy, and stability in modern biosensors. However, such biosensors still do not meet POC guidelines regarding these three characteristics. The purpose of this research was to resolve the limitations in reproducibility and accuracy caused by problems with production of the biosensors, with the aim of developing a platform capable of producing devices that exceed POC standards. SMT production settings were optimized and bioreceptor immobilization was improved through the use of a unique linker, producing a biosensor with exceptional reproducibility, impressive accuracy, and high stability. Importantly, the three characteristics of the sensors produced using the proposed platform all meet POC standards set by the Clinical and Laboratory Standards Institute (CLSI). This suggests possible approval of the biosensors for POC development. Furthermore, the detection range of the platform was demonstrated by constructing biosensors capable of detecting common POC targets, including circulating tumor cells (CTCs), DNA/RNA, and curcumin, and the devices were optimized for POC use. Recently, we have applied the platform to developing various biosensors of cardiac troponin I (cTnI) detection for Acute Coronary Syndrome (ACS) diagnosis on ambulance; COVID-19 antigen, antibody, and nucleic acid detection for epidemic prevention and control; cartilage oligomeric matrix protein (COMP) detection for Osteoarthritis (OA) monitoring. Overall, the platform developed in this study shows high potential for production of POC biosensors.

No.07

C-Myc-Directed Nrf2 Drives Malignant Progression of Head and Neck Cancer via Glucose-6-Phosphate Dehydrogenase and Transketolase Activation

Ya-Chu Tang, Jenn-Ren Hsiao, Shih-Sheng Jiang, Jang-Yang Chang, Pei-Yi Chu, Ko-Jiunn Liu, Hsun-Lang Fang, Li-Mei Lin, Huang-Hui Chen, Yen-Wen Huang, Yu-Tsen Chen, Fang-Yu Tsai, Su-Fang Lin, Yung-Jen Chuang, Ching-Chuan Kuo

Abstract

Rationale: NRF2, a redox sensitive transcription factor, is up-regulated in head and neck squamous cell carcinoma (HNSCC), however, the associated impact and regulatory mechanisms remain unclear.

Methods: The protein expression of NRF2 in HNSCC specimens was examined by IHC. The regulatory effect of c-MYC on NRF2 was validated by ChIP-qPCR, RT-qPCR and western blot. The impacts of NRF2 on malignant progression of HNSCC were determined through genetic manipulation and pharmacological inhibition in vitro and in vivo. The gene-set enrichment analysis (GSEA) on expression data of cDNA microarray combined with ChIP-qPCR, RT-qPCR, western blot, transwell migration/ invasion, cell proliferation and soft agar colony formation assays were used to investigate the regulatory mechanisms of NRF2.

Results: NRF2 expression is positively correlated with malignant features of HNSCC. In addition, carcinogens, such as nicotine and arecoline, trigger c-MYC-directed NRF2 activation in HNSCC cells. NRF2 reprograms a wide range of cancer metabolic pathways and the most notable is the pentose phosphate pathway (PPP). Furthermore, glucose-6-phosphate dehydrogenase (G6PD) and transketolase (TKT) are critical downstream effectors of NRF2 that drive malignant progression of HNSCC; the coherently expressed signature NRF2/G6PD/TKT gene set is a potential prognostic biomarker for prediction of patient overall survival. Notably, G6PD- and TKT-regulated nucleotide biosynthesis is more important than redox regulation in determining malignant progression of HNSCC.

Conclusions: Carcinogens trigger c-MYC-directed NRF2 activation. Over-activation of NRF2 promotes malignant progression of HNSCC through reprogramming G6PD- and TKT-mediated nucleotide biosynthesis. Targeting NRF2-directed cellular metabolism is an effective strategy for development of novel treatments for head and neck cancer.

No.08

Blimp-1 Moulds the Epigenetic Architecture of Il-21-Mediated Autoimmune Diseases Through an Autoregulatory Circuit

Yu-Wen Liu, Shin-Huei Fu, Ming-Wei Chien, Chao-Yuan Hsu, Ming-Hong Lin, Jia-Ling Dong, Rita Jui-Hsien Lu, Yi-Jing Li, Pao-Yang Chen, Chih-Hung Wang, Huey-Kang Sytwu

Abstract

PRDM1 encodes B lymphocyte-induced maturation protein 1 (BLIMP1), also known as a master regulator of T-cell homeostasis. We observed a negative relationship between Blimp-1 and IL-21 based on our previous data that Blimp-1 overexpression in T cells suppresses autoimmune diabetes while Blimp-1 deficient T cells contribute to colitis in NOD mice. Reanalysis of published datasets also reveals an inverse correlation between *PRDM1* and *IL21* in Crohn's disease. Here, we illustrate that Blimp-1 represses IL-21 by reducing chromatin accessibility and evicting an IL-21 activator c-Maf from the *Il21* promoter. Moreover, IL-21-accelerated autoimmune diabetogenesis in small ubiquitin-like modifier-defective c-Maf transgenic mice can be overridden by Blimp-1 overexpression-mediated reduction in permissive chromatin structures at *Il21* promoter. An autoregulatory feedback loop to harness IL-21 expression is unveiled by the evidence that addition of IL-21 induces time-dependent Blimp-1 expression and subsequently enriches its binding to the *Il21* promoter to suppress IL-21 overproduction. Furthermore, intervention of this feedback loop by IL-21 blockade, IL-21R.Fc administration or IL-21 receptor deletion, attenuates Blimp-1 deficiency-mediated colitis and reinforces the circuit between Blimp-1 and IL-21 in the regulation of autoimmunity. We highlight the translation of Blimp-1-based epigenetic and transcriptomic profiles applicable to a personalized medicine approach in autoimmune diseases.

No.09

Integrative Omics Analysis Reveals Soluble Cadherin-3 as a Survival Predictor and an Early Monitoring Marker of Egfr Tyrosine Kinase Inhibitor Therapy in Lung Cancer

Ting-Feng Hsiao, Chih-Liang Wang, Yi-Cheng Wu, Hsiang-Pu Feng, Yen Chuan Chiu, Hao-Yu Lin, Ko-Jiunn Liu, Gee-Chen Chang, Kun-Yi Chien,
Jau-Song Yu, and Chia-Jung Yu

Abstract

Purpose: EGFR tyrosine kinase inhibitors (EGFR-TKI) benefit patients with advanced lung adenocarcinoma (ADC) harboring activating EGFR mutations. We aimed to identify biomarkers to monitor and predict the progression of patients receiving EGFR-TKIs via a comprehensive omic analysis.

Experimental Design: We applied quantitative proteomics to generate the TKI resistance–associated pleural effusion (PE) proteome from patients with ADC with or without EGFR-TKI resistance. Candidates were selected from integrated genomic and proteomic datasets. The PE (n= 33) and serum (n= 329) levels of potential biomarkers were validated with ELISAs. Western blotting was applied to detect protein expression in tissues, PEs, and a cell line. Gene knockdown, TKI treatment, and proliferation assays were used to determine EGFR-TKI sensitivity. Progression-free survival (PFS) and overall survival (OS) were assessed to evaluate the prognostic values of the potential biomarkers.

Results: Fifteen proteins were identified as potential biomarkers of EGFR-TKI resistance. Cadherin-3 (CDH3) was overexpressed in ADC tissues compared with normal tissues. CDH3 knockdown enhanced EGFR-TKI sensitivity in ADC cells. The PE level of soluble CDH3 (sCDH3) was increased in patients with resistance. The altered sCDH3 serum level reflected the efficacy of EGFR-TKI after 1 month of treatment (n= 43). Baseline sCDH3 was significantly associated with PFS and OS in patients with ADC after EGFR-TKI therapy (n= 76). Moreover, sCDH3 was positively associated with tumor stage in non–small cell lung cancer (n= 272).

Poster Presentation

No.	Abstract Title / Authors & Affiliation
No.101	Mannose receptor C type 2 promotes migration and invasion via an SCD-1-related modulatory axis to affect EMT progression of gastric cancer
	Pin-Chun Lu[1], Hsin-Ying Clair Chiou[2], Jiunn-Wei Wang[3], Deng-Chyang Wu[4], Ming-Hong Lin[5,*] [1]Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [2]Center of Teaching and Research, Kaohsiung Municipal Siaogang Hospital, Kaohsiung Medical University, Kaohsiung 812, Taiwan; [3,4] Department of Internal Medicine, School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan Division of Gastroenterology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [5,*]Department of Microbiology and Immunology, School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan.
No.102	Circular RNA circNAI encodes a secreted protein and reduces the inflammation activity of astrocytes in Alzheimer's disease-iPSC models
	Chan-Hsien Yeh[1], Ching-Yu Chuang[2], Hung-Chin Kuo[1*] [1]Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan; [2]Genomics Research Center, Academia Sinica, Taipei, Taiwan.
No.103	The role and the transcriptional regulation of PGAM5 during neuronal regeneration
	Min-Zong Liang, Linyi Chen Institute of Molecular Medicine, National Tsing Hua University.
No.104	The LncRNA Smyca Coordinates TGF-β and Myc Pathways to Promote Tumor Malignancies
	Shu-Jou Chan[1,2], Hsin-Yi Chen[3,4], Hsin-Hsin Liu[1,2], Ru-In Jian[1,2], An-Chi Wei[1,2], Yuh-Shan Jou[5], and Ruey-Hwa Chen[1,2*] [1]Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan; [2]Institute of Biological Sciences, College of Life Science, National Taiwan University, Taipei, Taiwan; [3]Graduate Institute of Cancer Biology and Drug Discovery, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan; [4]Ph.D. Program for Cancer Molecular Biology and Drug Discovery, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan; [5]Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan.
No.105	IL-6 and CCL18 mediate reciprocal interactions between VHL-deficient kidney cells andmacrophages during development of ccRCC
	Thi-Ngoc Nguyen, Hieu-Huy Nguyen-Tran, Tien Hsu Department of Biomedical Sciences and Engineering, National Central University, 300 Zhongda Rd., Zhongli Dist., Taoyuan City, Taiwan, 32001 ROC; Graduate Institute of Biomedical Sciences, China Medical University-Taiwan, No. 91, Hsueh-Shih Rd., Taichung, Taiwan, 40402 ROC.
No.106	Optimized CpG-oligodeoxynucleotide sequence for activation of Toll-like receptor 9 from companion animals
	Undarmaa Tsengel (恩達瑪), Chien-Chia Wang (王健家), Tsung-Hsien Chuang （莊宗顯) Department of Life Sciences, National Central University, Taoyuan, Taiwan; National Health Research Institutes, Miaoli, Taiwan.
No.107	Acetyl-CoA Carboxylase Regulates Endosomal Trafficking forOvarian Germline Homeostasis in Drosophila
	Oyundari Amartuvshin, Yi-Teng Ke, and Hwei-Jan Hsu Molecular and Cell Biology, Taiwan International Graduate Program, Academia Sinica; Graduate Institute of Life Science, National Defense Medical Center; Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, 11529, Taiwan, ROC.
No.108	Deubiquitinase USP24 suppresses T cell antitumor activity via enhancement of PD-1 protein stability
	Hung-Chia Hsieh[1], Jan-Jong Hung[2], Yi-Ching Wang[1] [1]Institute of Basic Medicine; [2]Department of Biotechnology and Bioindustry Sciences, National Cheng Kung University.

No.	Abstract Title / Authors & Affiliation
No.109	WD40 Wuho regulates intestinal stem cell homeostasis for gut integrity and longevity
	Kreeti Kajal and Hwei-Jan Hsu Molecular and Biological Agricultural Sciences Program, Taiwan International Graduate Program, National Chung Hsing University and Academia Sinica,Taipei; Graduate Institute of Biotechnology, National Chung Hsing University, Taichung; Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan.
No.110	SUMOylation of RNA helicase DHX9 is important for genome stability
	Bin-Ze Yang, Ken-Ru Lin, Chin-An Cheng, Ching-Shyi Wu Department and Graduate Institute of Pharmacology, College of Medicine, National Taiwan University, 10051 Taipei, Taiwan.
No.111	Distinct Responses of Cytotoxic Ganoderma lucidum in Cervical Cancer Cell
	Hsiang-Hsiu Chen, Yu-Ting Hung , Wei -Chyou Wei[*] Institute of department Nutrition, Hung Kuang University, Taichung, Taiwan.
No.112	Context-specific roles of diphthamide deficiency in hepatocellular carcinogenesis
	Wei-Ling Tu[1], Ya-Tung Shih[1], Yi-Ru Yu[1], Yu-Chan Chih[1], Li-Ru You[2,3], Chun-Ming Chen[1,3#] [1]Department of Life Sciences and Institute of Genome Sciences, National Yang Ming Chiao Tung University, Taipei, Taiwan; [2]Institute of Biochemistry and Molecular Biology, National Yang Ming Chiao Tung University, Taipei, Taiwan; [3]Cancer Progression Research Center, National Yang Ming Chiao Tung University, Taipei, Taiwan.
No.113	Long noncoding RNA BCRP3 stimulates VPS34 and autophagy activities to prevent proteotoxic cell death
	Ruei-Liang Yan, Chiu-Lin Luan, Chun-Chieh Liao, Li-Heng Liu, Fei-Yun Chen, Hsin-Yi Chen, and Ruey-Hwa Chen Institute of Biological Chemistry, Academia Sinica, Taipei 115, Taiwan.
No.114	Taiwan teas inhibited the binding of COVID-19 to the ACE2 receptor
	Jen-Hao Hsieh , Tsung-Chen Su, Meei-Ju Yang, Chih-Chun Kuo, An-Ci Siao , Yen-Yue Lin , Li-Jane Shih, and Yung-Hsi Kao Department of Life Sciences, National Central University; Tea Research and Extension Station, Council of Agriculture, Executive Yuan; Taoyuan Armed and Force General Hospital.
No.115	RanBP2 promotes activation of the ATR signaling pathway and DNA repair in response to genotoxic stress
	Chin Wang, Jyy-Shiuan Tu, Li-Yu Tsui, and Ching-Shyi Wu Department and Graduate Institute of Pharmacology, College of Medicine, National Taiwan University, 10051 Taipei, Taiwan.
No.116	An investigation into the role of the long non-coding RNA LINC00514 in hypoxia-mediated tumor progression
	Jia-Ling Syu[1†], Pei-Hua Peng[2†] , Tui-Lin Yen[3†], Li-Jie Lin[1,4], Meng-Chih Wu[5], Chia-Wei Chang[6], Kai-Wen Hsu[1,7*] [1]Research Center for Cancer Biology, China Medical University, Taichung 404, Taiwan; [2]Cancer Genome Research Center, Chang Gung Memorial Hospital at Linkou, Taoyuan 333, Taiwan; [3]School of Medicine, China Medical University, Taichung 404, Taiwan; [4]The Ph.D. program for Cancer Biology and Drug Discovery, China Medical University and Academia Sinica, Taichung 404, Taiwan; [5]School of Chinese Medicine, China Medical University, Taichung 404, Taiwan; [6]Taiwan Instrument Research Institute, National Applied Research Laboratories, Hsinchu, Taiwan; [7]Graduate Institutes of New Drug Development, China Medical University, Taichung 404, Taiwan.
No.117	The signaling pathway of alcohol extracted Ganoderma Lucidum suppress mutant p53 expression in Triple-negative breast cancer brain metastasis.
	Yu-Heng Lin, Jia-Yun Ye, Yung-Lung Yu [1]Institute of Biomedical Science, China Medical University, Taichung 404, Taiwan; [2]Center for Molecular Medicine, China Medical University Hospital, Taichung 404, Taiwan; [3]Institute of New Drug Development, China Medical University, Taichung 404, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.118	Therapeutic evaluation of mesenchymal stem cell in traumatic brain injury-induced retinal ganglion cell damage
	Chung-Hsin Tseng, Shu-Chun Kuo, Ting-Feng Wu, Ching-Ping Chang Department of Medical Research, Chi Mei Medical Center, Tainan; Department of Ophthalmology, Chi Mei Medical Center, Tainan; Department of Biotechnology and Food Technology, South Taiwan University of Science and Technology, Tainan.
No.119	Positive feedback regulation between paraspeckle component 1(PSPC1) and tight junction protein ZO-1 in MDCK cell line
	Jia-Rung Li, Ming-Jer Tang Department of Physiology, National Cheng Kung University, Tainan, Taiwan; International Center for Wound Repair and Regeneration, Tainan, Taiwan.
No.120	Coupling of R-loop resolution and cell cycle checkpoint in genome stability by the interplay between DHX9 and ATR
	Mei-Yin Liu[1], Keng-Ru Lin[1], Bing-Ze Yang[1], Hsueh-Ping Chu[2], and Ching-Shyi Wu[1] [1]Department and Graduate Institute of Pharmacology, College of Medicine, National Taiwan University, 10051 Taipei, Taiwan; [2]Institute of Molecular and Cellular Biology, National Taiwan University, 10617 Taipei, Taiwan.
No.121	Antioxidnats overcome hyperlipidemia-raised metastasis through attenuate reactive oxygen species induced by interlukine-8 in colorectal cancer
	Chih-Jie Shen[1,2], Wen-Chang Chang[2,#], Ben-Kuen Chen[1,3,4,#] [1]Department of Pharmacology, College of Medicine, National Cheng Kung University, Tainan 701, Taiwan, ROC; [2]Graduate Institute of Medical Science, College of Medicine, Taipei Medical University, Taipei 110, Taiwan, ROC; [3]Department of Biotechnology and Bioindustry Sciences, College of Bioscience and Biotechnology, National Cheng Kung University, Tainan 701, Taiwan, ROC; [4]Graduate Institute for Cancer Biology and Drug Discovery, College of Medical Science and Technology, Taipei Medical University, Taipei 110, Taiwan, ROC.
No.122	A novel NRF2/ARE inhibitor gossypol induces cytotoxicity and sensitizes chemotherapy responses in chemo-refractory cancer cells
	Hsin-Huei Chang[2], Ya-Chu Tang[1,2], Huang-Hui Chen[2], Jau-Ying Yao[2], Yu-Tsen Chen[3], Yung-Jen Chuang[4,5], Jang-Yang Chang[2,3], Ching-Chuan Kuo[2,6*] [1]Graduate Program of Biotechnology in Medicine, Institute of Bioinformatics and Structural Biology, National Tsing Hua University, Hsinchu, Taiwan; [2]Institute of Biotechnology and Pharmaceutical Research, National Health Research Institutes, Miaoli, Taiwan; [3]National Institute of Cancer Research, National Health Research Institutes, Miaoli, Taiwan; [4]Institute of Bioinformatics and Structural Biology, National Tsing Hua University, Hsinchu, Taiwan; [5]Department of Medical Science, National Tsing Hua University, Hsinchu, Taiwan; [6]Graduate Institute of Biomedical Sciences, China Medical University, Taichung, Taiwan.
No.123	A γ-tubulin complex-dependent pathway suppresses unscheduled ciliogenesis by promoting cilia disassembly
	Sahana Shankar[1,2,#], Zi-Ting Hsu[3,#], Artur Ezquerra[4], Chien-Chien Li[3], Tzu-Lun Huang[1,2], Etienne Coyaud[5,6], Ricardo Viais[4], Cédric Grauffel[7], Brian Raught[5,6], Carmay Lim[7], Jens Lüders[4], Su-Yi Tsai[3,8], Kuo-Chiang Hsia[1,2,9] [1]Molecular and Cell Biology, Taiwan International Graduate Program, Academia Sinica and Graduate Institute of Life Sciences, National Defense Medical Center, Taipei 11490, Taiwan; [2]Institute of Molecular Biology, Academia Sinica, Taipei 11529, Taiwan; [3]Department of Life Science, National Taiwan University, Taipei 10617, Taiwan; [4]Institute for Research in Biomedicine (IRB Barcelona), The Barcelona Institute of Science and Technology, Barcelona 08028, Spain; [5]Princess Margaret Cancer Centre, University Health Network, 101 College Street, Toronto ON M5G 1L7, Canada; [6]Department of Medical Biophysics, University of Toronto, Toronto ON M5G 1L7, Canada; [7]Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan; [8]Genome and Systems Biology Degree Program, National Taiwan University and Academia Sinica, Taipei 10617, Taiwan; [9]Institute of Biochemistry and Molecular Biology, College of Life Sciences, National Yang-Ming University, Taipei 11221, Taiwan. [#]Equal contribution

No.	Abstract Title Authors & Affiliation
No.124	Mutual application on production of agarwoodfragrance oil by bacillus selected from aquaculture sediments
	Ou Suixing*, Hong Mingchang, Wang Guanjie National Kaohsiung University of Science and Technology Department and Graduate Institute of Aquaculture.
No.125	Targeting Histone Deacetylase-3 Blocked Epithelial-Mesenchymal Plasticity and Metastatic Dissemination in Gastric Cancer
	Sheng-Mao Wu[1], Yee-Jee Jan[2], Shih-Chuan Tsai[3], Hung-Chuan Pan[4,11], Chin-Chang Shen[5], Cheng-Ning Yang[6], Shu-Hua Lee[1], Shing-Hwa Liu[7,8], Chien-Shan Chiu[9], Jack L. Arbiser[10], Menghsiao Meng[11], Meei-Ling Sheu[1,12,13] [1]Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan; [2]Department of Pathology and Laboratory Medicine, Taichung Veterans General Hospital, Taichung, Taiwan; [3]Department of Nuclear Medicine, Taichung Veterans General Hospital, Taichung, Taiwan; [4]Department of Neurosurgery, Taichung Veterans General Hospital, Taichung, Taiwan; [5]Institute of Nuclear Energy Research, Atomic Energy Council, Taoyuan, Taiwan; [6]Department of Dentistry, School of Dentistry, College of Medicine, National Taiwan University, Taipei, Taiwan; [7]Institute of Toxicology, College of Medicine, National Taiwan University, Taipei 100, Taiwan; [8]Department of Medical Research, China Medical University Hospital, China Medical University, Taichung, Taiwan; [9]Department of Dermatology, Taichung Veterans General Hospital, Taichung, Taiwan; [10]Department of Dermatology, Emory University School of Medicine, Winship Cancer Institute, Atlanta Veterans Administration Health Center, Atlanta, GA, USA; [11]Graduate Institute of Biotechnology, National Chung Hsing University, Taichung, Taiwan; [12]Department of Medical Research, Taichung Veterans General Hospital, Taichung, Taiwan; [13]Ph.D. program in Translational Medicine, Rong Hsing Research Center for Translational Medicine, National Chung Hsing University, Taichung, Taiwan.
No.126	Stemness BMP Signals Modulate Mitochondrial Shape and Content in Germline Homeostasis
	Chi-Hung Lin and Hwei-Jan Hsu Molecular and Cell Biology, Taiwan International Graduate Program, Academia Sinica.
No.127	Cisplatin treatment induced interleukin-33 production to promote M2-like macrophages polarization and ST2L expression via IL-33/ST2L/NF-κB signaling loop
	You-En Yang (楊侑恩)[1], Meng-Hsuan Hu[1], Yen-Cheng Zeng[2], Chih-Peng Chang[2,3*], Yi-Ching Wang[1,3*] [1]Department of Pharmacology, Tainan, 70101, Taiwan; [2]Institute of Microbiology and Immunology, Tainan, 70101, Taiwan; [3]Institute of Basic Medical Sciences, and College of Medicine, National Cheng Kung University, Tainan, 70101, Taiwan.
No.128	Oncogenic ISX-TWIST1 complex-induces inflammasome activity mediating chronic liver disease
	Yu-Ci Huang, Jhih-Peng Tsai, and Shih-Hsien Hsu Graduate Institute of Medicine, College of Medicine F Center of Applied Genomics, Kaohsiung Medical University, Kaohsiung, Taiwan.
No.129	The Role of Oral Squamous Cell Carcinoma-Derived Exosomal miR-421 in Angiogenesis via Targeting HS2ST1 in Vascular Endothelial Cells
	Chia-Yun Huang, Guan-Hsun Wu, Sung-Tau Chou , Shine-Gwo Shiah National Institute of Cancer Research, National Health Research Institutes.
No.130	The study of how second messengers and protein kinases regulate neuronal polarize trafficking
	Jhao-Ching Jhong, Dr. Chan-Yen Ou Institute of Biochemistry and Molecular Biology, College of Medicine, National Taiwan University.
No.131	LIF Regulates Macrophage Immune Response in Oral Squamous Cell Carcinoma.
	Yun-Hua Sui, Tzu-Tung Liu, Po-Ju Lee, and Shu-Chen Liu Department of Biomedical Science and Engineering, National Central University, Taiwan.
No.132	Reversing the tide of immunosuppressive tumor microenvironment by using a CpG-oligodeoxynucleotide enhances the efficacy of immune checkpoint blockade on head and neck cancer
	Jen-Chih Tseng, Jing-Xing Yang, Yi-Ling Liu, Tsung-Hsien Chuang Immunology Research Center, National Health Research Institutes, Miaoli, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.133	Role of EBV Products-Containing Exosomes in Regulating Macrophage Polarization and Immune Response
	Tzu-Tung Liu, Yun-Hua Sui, Po-Ju Lee, Chen-Han Huang[*], Shu-Chen Liu[*] Department of Biomedical Sciences and Engineering, National Central University, Taoyuan, Taiwan.
No.134	Reductive Metabolism by T315I Mutation in Bcr-Abl-transformation Directs Anti-metabolites Therapeutics
	Chang-Yu Huang, Sheng-Yang Wu, Yin-Hsuan Chung, Tung Chao, Jim-Ming Feng, and Zee-Fen Chang Institute of Molecular Medicine, College of Medicine, National Taiwan University, Taipei, 100, Taiwan.
No.135	LIF stimulates YAP1 activation through PAR1 to promote NPC migration
	Cheng-Han Cai, Shu-Chen Liu Department of Biomedical Sciences and Engineering, National Central University, Taiwan.
No.136	Nuclear accumulation of KPNA2 impacts radioresistance through positive regulation of the PLSCR1-STAT1 loop in lung adenocarcinoma
	Yu-Chin Liu[*], Wei-Chao Liao[*], Tsung-Jen Lin[*], Yu-Shan Wei, Guan-Ying Chen, Hsiang-Pu Feng, Yi-Feng Chang, Hsin-Tzu Chang, Chih-Liang Wang, Hsinag-Cheng Chi, Chun-I Wang, Kwang-Huei Lin Wei-Ting Ou Yang and Chia-Jung Yu Chang Gung University.
No.137	TERRA R-loops Recruit XPF to Activate Break-Induced Telomere Synthesis
	Chia-Yu Guh, Pei-Chen Chu, Liv WeiChien Chen, Hong-Jhih Shen, Yi-Yun Chen, Hsueh-Ping Chu National Taiwan University, Institute of Molecular and Cellular Biology.
No.138	Tropomyosin isoform 1.6/1.7 determine fibroblast to myofibroblast activation and matrix degradation under low rigidity environment.
	Ching Lung Wu[2,3], Gang Hui Lee[3], Ming Jer Tang[1,2,3] [1]Department of Physiology, College of Medicine, NCKU, Tainan; [2]The institute of Basic Medical Sciences, College of Medicine, NCKU, Tainan; [3]International Center for Wound Repair and Regeneration, NCKU, Tainan.
No.139	Characterization of NNV-Regulated Immune Responses in Grouper Interferon Pathway
	Yu-An Liu, Zi-Jieh Chuang, Chai-Foong Lai, Tzong-Yueh Chen Department of Biotechnology and Bioindustry Sciences, National Cheng Kung University, Tainan, Taiwan.
No.140	GSK3β interacting protein, GSKIP, participates in SHSY-5Y cell aggregation via EMT signaling rather than proliferation and differentiation
	Xin-Yi Lin[1,2], Cheng-Yu Tsai[3], Huey-Jiun Ko[1,2], Shean-Jaw Chiou[2], Yi-Ren Hong[1,2*] [1]Department of Biochemistry, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [2]Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [3]Department of Neurosurgery, Kaohsiung Medical University Hospital, Kaohsiung 807, Taiwan.
No.141	PARP1 facilitates the recruitment of DNA translocases to damaged replication forks
	Yen-Chih Ho[1], Chen-Syun Ku[1], Jia-Lin Shiu[1], Siang-Sheng Tsai[1], Song-Bin Chang[1], Peter Chi[2], Hungjiun Liaw[1,*] [1]Department of Life Sciences, National Cheng Kung University, No.1 University Road, Tainan City 701, Taiwan; [2]Institute of Biological Chemistry, Academia Sinica.
No.142	Characterized function of deubiquitinating enzymes (DUBs) in Drosophila autophagy
	Yuchieh Jay Lin, Guang-Chao Chen [1]Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan; [2]Institute of Biochemical Sciences, College of Life Science, National Taiwan University, Taipei, Taiwan.
No.143	The role of PKCβ in oral squamous cell carcinogenesis
	Xiao-Jin Chong, Ruei-Nian Li Department of Biomedical Science and Environmental Biology, Kaohsiung Medical University, Kaohsiung, Taiwan.
No.144	Honokiol Thwarts Epithelial VMesenchymal Transition and Peritoneal Dissemination by Regulating YY1 in Mouse Model
	Ai-Chang[*], Sheng-Mao Wu, Meei-Ling Sheu Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.145	Development of new KDM4 inhibitors by a structure-guided approach
	Wei-Kai Fang[1], Shan-Min Yang[1], Hsing-Pang Hsieh[2], Wen-Ching Wang[1] [1]Institute of Molecular and Cellular Biology and Department of Life Sciences, National Tsing-Hua University, Hsinchu 300044, Taiwan, ROC; [2]Institute of Biotechnology and Pharmaceutical Research, National Health Research Institutes, 35 Keyan Road, Zhunan, Miaoli County 35053, Taiwan, ROC.
No.146	KDM4A mediates metastasis in Oral Cancer
	Shan-Min Yang[1], Meng-Chen Wu[1], Ching-Yu Lin[2,3], Wei-Kai Fang[1], Wen-Ching Wang[1] [1]Institute of Molecular and Cellular Biology and Department of Life Sciences, National Tsing-Hua University, Hsinchu, 30013, Taiwan; [2]Institute of Cellular and System Medicine, National Health Research Institutes, Miaoli, Taiwan; [3]Ph.D. Program for Cancer Molecular Biology and Drug Discovery, Taipei Medical University, Taipei, Taiwan.
No.147	TG-interacting factor modulates C/EBPβ expression in early adipogenesis
	Yu-Hao Chang, Huei-Sheng Huang Institute of Basic Medical Sciences, College of Medicine, National Cheng Kung University; Department of Medical Laboratory Science and Biotechnology, College of Medicine, National Cheng Kung University.
No.148	Investigation of cyclin-CDK-driven cell cycle progression in Caenorhabditis elegans male meiosis
	Shang-Yang Chen[1] and Jui-Ching Wu[1,2] [1]Department of Clinical Laboratory Science and Medical Biotechnology, National Taiwan University, Taipei, Taiwan; [2]Department of Laboratory Medicine, National Taiwan University Hospital, Taipei, Taiwan.
No.149	AUY922 induces retinal toxicity through attenuating TRPM1
	Che-Hung Shen[1,6,8], Chi-Che Hsieh[1,8], Kuan-Ying Jiang[1], Chih-Yu Lin[1], Nai-Jung Chiang[1,2], Ting-Wei Li[3], Chun-Ting Yen[4], Wan-Ju Chen[7], Daw-Yang Hwang[1] and Li-Tzong Chen[1,2,5] [1]National Institute of Cancer Research, National Health Research Institutes, No. 367, Sheng-Li Rd., North District, Tainan 70456, Taiwan; [2]Department of Oncology, National Cheng Kung University Hospital, National Cheng Kung University, Tainan 704, Taiwan; [3]Department of Life Sciences, National Cheng Kung University, Tainan 704, Taiwan; [4]Institute of Molecular Medicine, National Cheng Kung University, Tainan 704, Taiwan; [5]Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [6]Ph.D. Program in Tissue Engineering and Regenerative Medicine, Biotechnology Center, National Chung Hsing University, Taichung 402, Taiwan; [7]Department of Ophthalmology, National Cheng Kung University Hospital, National Cheng Kung University, Tainan 704, Taiwan; [8]These authors contributed equally to this work.
No.150	Fusion to Vip3A optimize the oral activity of insecticidal ω-Hexatoxin-Hv1a peptide by intestinal perforation its Delivery to hemolymph.
	Jun-Han Chen Department of Biological Science & Technology. National Chaio Tung University, Hsinchu, Taiwan 30010.
No.151	Protection of superoxide dismutase/ catalase mimetic EUK-134 on autophagy-mediated retina degeneration
	Shang Chun Tsou[1], Chin Lin Hsu[1], Hui Wen Lin[2], Yuan-Yen Chang[3,4] [1]Dearment of Nutrition, Chung-Shang Medical University, Taichung 402, Taiwan; [2]Department of Optometry, Asia University, Taichung, Taiwan; [3]Department of Microbiology and Immunology, School of Medicine, Chung Shan Medical University, Taichung, Taiwan; [4]Department of Medical Education, Chung Shan Medical University Hospital, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.152	α-mangostin against oxidative injury and autophagy in sodium iodate induced retinal degeneration model via Keap1-Nrf2-p62 signaling pathway
	Jui-Hsuan Yeh[1], Yi-Hsien Hsien[1], Hui-Wen Lin[2], Yuan-Yen Chang[3,4] [1]Institute of Medicine, Chung Shan Medical University, Taichung 402, Taiwan; [2]Department of Optometry, Asia University, Taichung, Taiwan; [3]Department of Microbiology and Immunology, School of Medicine, Chung Shan Medical University, Taichung, Taiwan; [4]Department of Medical Education, Chung Shan Medical University Hospital, Taiwan.
No.153	Ellagic Acid Resensitizes Gemcitabine-Resistant Bladder Cancer Cells by Inhibiting Epithelial-Mesenchymal Transition and Gemcitabine Transporters
	Ying-Si Wu[1,2,†], Jar-Yi Ho[1,2,†], Cheng-Ping Yu[1,2,3], Chun-Jung Cho[1], Chia-Lun Wu[1,2], Cheng-Shuo Huang[1,2], Hong-Wei Gao[1,2,*] and Dah-Shyong Yu[2,4,*] [1]Graduate Institute of Pathology and Parasitology, National Defense Medical Center, Taipei 114, Taiwan; [2]Graduate Institute of Life Sciences, National Defense Medical Center, Taipei 114, Taiwan; [3]Department of Pathology, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan; [4]Division of Urology, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan; [*]Correspondence: doc31796@mail.ndmctsgh.edu.tw (H.-W.G.); yuds45@gmail.com (D.-S.Y.); [†]These authors contributed equally to this work.
No.154	Deficiency of IL-21 Receptor Amplifies GM-CSF Production in CD4 T Cells to Exacerbate Experimental Autoimmune Encephalomyelitis
	Jia-Ling Dong[1], Ming-Wei Chien[2,3], Huey-Kang Sytwu[1,2,3] [1]Graduate Institute of Life Sciences, National Defense Medical Center, Taipei, Taiwan. [1] 國防醫學院生命科學研究所
No.155	Investigating the roles of male meiosis-specific translation CPEB protein CPB-1 during spermatogenesis in C. elegans.
	Ya-chen Chiu, Jui-ching Wu Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University, Taipei Taiwan
No.156	Investigate the role of spermatogenic-specific protein SMZ-1 and SMZ-2 during spermatogenesis in C. elegans
	Ya-chen Chiu, Jui-ching Wu Department of Clinical Laboratory Science and Medical Biotechnology, National Taiwan University.
No.157	Investigating the balancing mechanism between GSP-2 and AIR-2 in Caenorhabditis elegans spermatogenesis
	Yu-Nan Tsai, Yi-Hsiu Lin, Jui-Ching Wu Department of Clinical Laboratory Science and Medical Biotechnology, National Taiwan University.
No.158	Apolipoprotein E deficiency activates thermogenesis of white adipose tissues in mice through enhancing β-hydroxybutyrate production from precursor cells
	Chung-Lin Jiang 1, Ying-Fang Chen 1, Fu-Jung Lin 1,2 [1]Department of Biochemical Science and Technology, National Taiwan University, Taipei, Taiwan [2]Research Center for Development Biology and Regenerative Medicine, National Taiwan University, Taipei, Taiwan. [1] 國立臺灣大學生化科技學系 [2] 國立臺灣大學發育生物學與再生醫學研究中心
No.159	Characterization of the transition between meiosis I and meiosis II during spermatogenesis in Caenorhabditis elegans
	Yu-Hao Chen, Shang-Yang Chen, Jui-Ching Wu Department of Clinical Laboratory Sciences and Medical Biotechnology, National Taiwan University, Taipei, Taiwan.
No.160	Modeling visual system with human 3D retina-cortico assembloid for studying Bietti crystalline dystrophy
	Yu-Ju Chou, Ta-Ching Chen, Ching-Yu Chuang and Hung-Chih Kuo[*] Institute of Cellular and Organismic Biology, Academia Sinica, Taipei 115, Taiwan; Department of Ophthalmology, College of Medicine, National Taiwan University, Taipei 100, Taiwan; Genomics Research Center, Academia Sinica, Taipei 115, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.161	Integrative analyses of single-cell transcriptome and immune repertoire reveal cell-type-specific molecular signatures in systemic lupus erythematosus
	Hsin-Hua Chen[#], Wen-Cheng Chao[#], Jing-Rong Wang[#], Hsiao-Ni Sung, Kuan-Ting Liu, Chi-Hung Shu, Wen-Ting Liao, Tai-Ming Ko [#]These authors contributed equally to this work: Hsin-Hua Chen, Wen-Cheng Chao, Jing-Rong Wang Division of Allergy, Immunology and Rheumatology, Department of Internal Medicine, Taichung Veterans General Hospital, Taichung, Taiwan; School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan; Department of Industrial Engineering and Enterprise Information, Tunghai University, Taichung, Taiwan; Institute of Biomedical Science and Rong Hsing Research Center for Translational Medicine, Chung Hsing University, Taichung, Taiwan; Institute of Medicine, Chung Shan Medical University, Taichung, Taiwan; Department of Critical Care Medicine, Taichung Veterans General Hospital, Taichung, Taiwan; Department of Biological Science and Technology, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; Institute of Bioinformatics and Systems Biology, National Chiao Tung University, Hsinchu, Taiwan; Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan; Center For Intelligent Drug Systems and Smart Bio-devices (IDS2B), National Yang Ming Chiao Tung University, Hsinchu, Taiwan.
No.162	Glutamine/proline-rich PQE-1 proteins protect Caenorhabditis elegans neurons from transgene induced degeneration through phase separation
	Hao-Ru Huang, Chan-Yen Ou Institute of Biochemistry and Molecular Biology, College of Medicine, National Taiwan University, Taipei 100, Taiwan.
No.163	Urolithin B attenuates IL-1 beta-induced catabolic effects through inhibiting NF-κB signaling in articuar chondrocytes and and osteoarthritis in rats
	Feng-Cheng Wu[1,2], Feng-Cheng Liu[3], Chih-Chien Wang[4], Yi-Jen Peng[2,5*] [1]Graduate Institute of Life Science, National Defense Medical Center, Taipei, Taiwan, R.O.C; [2]Graduate Institute of Pathology and Parasitology, National Defense Medical Center, Taipei, Taiwan, R.O.C; [3]Rheumatology, Immunology and Allergy, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, R.O.C; [4]Department of Orthopedic, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, R.O.C; [5]Department of Pathology, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, R.O.C.
No.164	Investigation of Early-Onset Familial Breast Cancer in Taiwan by Whole-Exome Sequencing
	Yuh-Ru Lin[1*], Chuan-Hsun Chang[2,3,4*], Ralph Kirby[5], Hui-Ying Weng[6], Chia-Yin Chiang[1], Yen-Ming Liu[1], Yung-Feng Lin[1], Yi-Hsien Lin[7,8], Shuh-Jen Sheu[9], Shih-Feng Tsai[1] [1]Institute of Molecular and Genomic Medicine, National Health Research Institutes, Zhunan, Miaoli County, Taiwan; [2]Department of Surgery, Cheng Hsin General Hospital, Taipei, Taiwan; [3]School of Nutrition and Health Sciences, Taipei Medical University, Taipei, Taiwan; [4]Department of Surgery, National Defense Medical Center, Taipei, Taiwan; [5]Department of Life Sciences, National Yang Ming Chiao Tung University, Taipei, Taiwan; [6]Biomedical Industry PhD Program, National Yang Ming Chiao Tung University, Taipei, Taiwan; [7]Division of Radiotherapy, Cheng Hsin General Hospital, Taipei, Taiwan; [8]School of Medicine, National Yang Ming Chaio Tung University, Taipei, Taiwan; [9]Institute of Community Health Care, School of Nursing, National Yang Ming Chaio Tung University, Taipei, Taiwan.
No.165	Using JC polyomavirus-like particles (JC VLPs) conjugated with specific target peptides to inhibit the growth of prostate cancer cells
	Chiu-Tan Chen, Pei-Lain Chen[*] Department of Medical Laboratory Science and Biotechnology, Central Taiwan University of Science and Technology.

No.	Abstract Title / Authors & Affiliation
No.166	LOX-1-mediated intracellular trafficking of L5-LDL induces mitochondrial dysfunction and endothelial apoptosis
	Bo-Xuan Yao, Liang-Yin Ke, Ming-Hsien Tsai, Chih-Sheng Chu, Hua-Chen Chan Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan; Department of Medical Laboratory Science and Biotechnology, College of Health Sciences, Kaohsiung Medical University, Kaohsiung, Taiwan; Center for Lipid Biosciences, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; Division of Cardiology, Department of International Medicine, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; Center for Lipid Biosciences, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan.
No.167	High expression of interferon pathway genes CXCL10 and STAT2 is associated with activated T-cell signature and better outcome of oral cancer patients
	Chang-Shen Lin[1], Yun-Cian Huang[1], Jau-Ling Huang[2], Lu-Chia Tseng[2], Bin-Hung Yu[3], Si-Yun Chen[1] [1]Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung; [2]Department of Bioscience Technology, College of Health Science, Chang Jung Christian University, Tainan; [3]Department of Nursing, National Taichung University of Science and Technology, Taichung.
No.168	Rescue from Lipotoxicity by cis-9-Octadecenoic Acid and Octadecanoic Acid during Palmitic Acid Induced Hepatic Steatosis in HepG2 Cells
	Chih-Chung Chou*, Mei-Hsin Su, Yu-Yao Lin, Wan-Yu Chen, Chen-Ya Hsu Department and Graduate School of Biotechnology, Fooyin University.
No.169	Potentiation of Lipotoxicity by Chloroquine during Octadecanoic Acid Induced Hepatic Steatosis in Human Hepatoblastoma HepG2 Cells
	Chen-Ya Hsu*, Mei-Hsin Su, Yu-Yao Lin, Wan-Yu Chen, Chih-Chung Chou Department and Graduate School of Biotechnology, Fooyin University.
No.170	Allelopathy of Litsea Cubeba on the Reactive Oxygen Species and Antioxidant Capacity of Cherry Radish.
	Ting-Yu Hou, Ho Lo, Yun-An Chen Department of Biological Sciences National Sun Yat-sen university.
No.171	Explore the gene expression profiles of hematopoietic cells in different maturation stages in cord blood by using 13-color flow cytometric analysis and sorting.
	Yu-Wen Huang[1], Chien-Chin Lin[2], Chein-Jun Kao[2], Wan-Chu Chuang[1], Kai-Ting Yang[1], Ya-Ting Chuang[1] [1]FACS core, Department of Medical Research, National Taiwan University Hospital; [2]Department of Laboratory Medicine, National Taiwan University Hospital.
No.172	Overexpression of E2F6 suppresses DC maturation through epigenetic silencing of miR-193a in ovarian cancer
	Leah H. J. Tsai, Ching-Wen Lin, Yin-Chen Chen, Frank H. C. Cheng, Ru-Inn Lin, Jora M. J. Lin, Chia-Bin Chang, Yu-Ming Chuang, Hon-Yi Lin, Rui-Lan Huang, Hung-Cheng Lai, Xiao jing Ma, Shu-Fen Wu, Michael W. Y. Chan Dept. of Life Sci., Natl. Chung-Cheng Univ., Taiwan; Buddhist Dalin Tzu Chi Hosp., Taiwan; Taipei Medical University, Taiwan; Sch. of Med., TMU, Taiwan; Cornell Univ., NY, USA.
No.173	Wogonin inhibits ovarian cancer cell viability via regulating AMPK-TET-5hmc axis
	Wen-Long Huang, Ru-Inn Lin, Yu-Ming Chuang, Shu-Yi Yang, Jing-Siang Jhang, Chia-Chou Yeh, Michael W. Y. Chan Department of Chinese Medicine, Buddhist Dalin Tzu Chi General Hospital, Dalin, Chia-Yi, Taiwan, ROC; Department of Biomedical Sciences, National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Epigenomics and Human Disease Research Center, National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Center for Innovative Research on Aging Society (CIRAS), National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.174	Inducement of apoptosis and mitosis delay by cucurbitacin I, a tetracyclic triterpenes in human cervix cancer cell lines
	Ya-Min Cheng[1,2], Chun-Fan Chao[3], and Yi-Chiang Hsu[4*] [1].Kuo General Hospital, Tainan, Taiwan; [2]Department of Obstetrics and Gynecology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [3]Institute of Molecular Biology, National CHUNG HSING University, Taichung City, Taiwan; [4]School of Medicine, I?Shou University, Kaohsiung city, Taiwan.
No.175	Cucurbitacin I, a tetracyclic triterpenes Induced cell apoptosis and cell cycle arrest in Caski cells
	Sung-Nan Pei[1], Chun-Fan Chao[2] , Yi-Chiang Hsu[3] [1]Department of Hematological Oncology, E-Da Cancer Hospital, Kaohsiung city, Taiwan; [2]Institute of Molecular Biology, National CHUNG HSING University, Taichung City, Taiwan; [3]School of Medicine, I?Shou University, Kaohsiung city, Taiwan.
No.176	A modifier screen for novel genes involved in Rap1-mediated collective invasion in border cells
	Cang-Xian Li National Sun Yat-sen University, Institute of Biomedical Science.

No.	Abstract Title / Authors & Affiliation
	Authors & Affiliation
No.201	Chemoproteomic profiling reveals cellular targets of nitro-fatty acids
	Ming-Yu Fang[1], Kuan-Hsun Huang[2], Wei-Ju Tu[3], Yi-Ting Chen[3,4,5], Pei-Yun Pan[2], Wan-Chi Hsiao[1,6], Yi-Yu Ke[2], Lun K.Tsou[2], Mingzi M.Zhang[1*] [1]Institute of Molecular and Genomic Medicine, National Health Research Institutes, Zhunan, Miaoli, Taiwan; [2]Institute of Biotechnology and Pharmaceutical Research, National Health Research Institutes, Zhunan, Miaoli, Taiwan; [3]Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan; [4]Department of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan; [5]Department of Nephrology, Chang Gung Memorial Hospital, Linkou Medical Center, Taoyuan, Taiwan; [6]Institute of Biotechnology, National Tsing Hua University, Hsinchu,, Taiwan.
No.202	Development of fully human neutralizing antibodies targeting chitinase-3 like-protein-1 with anti-tumor effect in vitro and in vivo.
	Pei-Chia Su[1], Min-Hua Yu[2], Pei-Shan Yang[2], I-Ying Kou[1], Chih-Peng Chang[1,3], Yi-Ching Wang[1,2*] [1]Institute of Basic Medical Sciences; [2]Department of Pharmacology; [3]Department of Microbiology and Immunology, College of Medicine, National Cheng Kung University, Tainan, Taiwan.
No.203	Melatonin thwarts epithelial-mesenchymal transition and peritoneal dissemination via VDR/Twist axis
	Yun-Xuan, Lee, Sheng-Mao Wu, Meei-Ling Sheu Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan.
No.204	Post-translational modifications of eEF2 in hepatic and pancreatic organoids
	Ping-Hong Li, Wei-Lun Huang, Wei-Ling Tu and Chun-Ming Chen Department of Life Sciences and Institute of Genome Sciences, National Yang Ming Chiao Tung University, Taipei, Taiwan.
No.205	The phosphorylation status of Drp1-Ser637 by PKA in mitochondrial fission modulates mitophagy via PINK1/Parkin to exert multipolar spindles assembly during mitosis
	Huey-Jiun Ko[1,2], Xin-Yi Lin[1,2], Shean-Jaw Chiou[2], Joon-Khim Loh[1,3] and Yi-Ren Hong[1,2*] [1]Department of Biochemistry, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [2]Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan; [3]Department of Neurosurgery, Kaohsiung Medical University Hospital, Kaohsiung 807, Taiwan.
No.206	Switching On/Off the Hh signalling Pathway Determines Niche Cell Fates of Ovarian Germline Stem Cells
	Yu-Ting Wang[1,2,3], Chun-Ming Lai[3,*], and Hwei-Jan Hsu[1,2,3] [1]Molecular and Cell Biology, Taiwan International Graduate Program, Academia Sinica; [2]Graduate Institute of Life Science, National Defense Medical Center; [3]Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan; [*]present address: Louisiana Cancer Research Center, Tulane University, LA, USA 70112.
No.207	Engineered Phototrophic Escherichia coli Boosts Biosynthesis by Gloeobacter rhodopsin Expression
	Chao-Yu Lee, Kai-Wen Chen, Lung-Chieh Chen, Chun-San Dai, Erick Wang, Jun-Han Chen, Chih-Wen Cheng, Wen-Laing Chen Institute of Molecular Medicine and Bioengineering; Department of Biological Science & Technology, National Yang Ming Chiao Tung University, 300093 Hsinchu, Taiwan.
No.208	Mislocalized NEAT1 induces TDP-43 proteinopathy and NEAT1-antisense oligonucleotides alleviate toxicity in ALS models
	Yi-Ying Wu, Yi-Chung Lee, Chan-Shien Yeh, Ching-Yu Chuang, Yu-Ju Chou, Yu-Ju Liu, Yuh-shen Lye, Yijuang Chern, Yun-Ru Chen, Joseph Jen-Tse Huang and Hung-Chih Kuo[*] Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan; Department of Neurology, Taipei Veterans General Hospital, Taipei, Taiwan; Genomics Research Center, Academia Sinica, Taipei, Taiwan; Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan; Institute of Chemistry, Academia Sinica, Taipei, Taiwan; Graduate Institute of Medical Genomics and Proteomics, College of Medicine, National Taiwan University, Taipei, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.209	MiR-a/CPT1A-mediate fatty acid oxidation regulates tumor progression in Oral Cancer
	Cih-Yuang Fang[1,2,3], Wan-Ju Chao[2], Jenn-Ren Hsiao[4], Horng-Dar Wang[3*], Shine-Gwo Shiah[2,3*] [1]Graduate Program of Biotechnology in Medicine, NTHU & NHRI; [2]National Institute of Cancer Research, National Health Research Institutes, Miaoli, Taiwan; [3]Institute of Biotechnology, National Tsing Hua University, Hsinchu, Taiwan; [4]Department of Otolaryngology, Head and Neck Collaborative Oncology Group, National Cheng Kung University hospital, College of Medical, National Cheng Kung University, Tainan, Taiwan.
No.210	Modeling Human Gynecologic Cancer Using Genetic Modified Mice and Organoid Culture
	Yu-Ru Lin ,Yi-Jen Chen and Chun-Ming Chen Department of Life Sciences and Institute of Genome Sciences, National Yang Ming Chiao Tung University, Taipei, Taiwan; Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan.
No.211	An innovative NRF2 nano-modulator induces lung cancer ferroptosis and elicits an immunostimulatory tumor microenvironment
	Fu-Hsuan Shih[1,3], Chih-Hsiung Hsieh[2], Hung-Chia Hsieh[2,3], Dar-Bin Shieh[1,3,4,5,6,] and Yi-Ching Wang[1,3*] [1]Institute of Oral Medicine, National Cheng Kung University, Tainan, 70101, Taiwan; [2]Department of Pharmacology, National Cheng Kung University, Tainan, 70101, Taiwan; [3]Institute of Basic Medicine, National Cheng Kung University, Tainan, 70101, Taiwan; [4]Center of Applied Nanomedicine, National Cheng Kung University, Tainan, 70101, Taiwan; [5]Core Facility Center, National Cheng Kung University, Tainan 701401, Taiwan; [6]Department of Stomatology, National Cheng Kung University Hospital, Tainan, 704302, Taiwan.
No.212	The role and regulatory mechanisms of mast cells in head and neck cancer cells
	Luo-Cih Syu[1,2,3], Jau-Ying Yao[3], Shih-Sheng Jiang[4], Jeffrey Shu-Ming Chang[4], Shau-Ku Huang[5], Ko-Jiunn Liu[4], Jang-Yang Chang[3], Yu-Ting Chou[2], Ching-Chuan Kuo[3] [1]Graduate Program of Biotechnology in Medicine, NTHU & NHRI; [2]Institute of Biotechnology, National Tsing Hua University, Hsinchu, Taiwan; [3]Institute of Biotechnology and Pharmaceutical Research, National Health Research Institutes, Miaoli, Taiwan; [4]National Institute of Cancer Research, National Health Research Institutes, Miaoli, Taiwan; [5]National Institute of Environmental Health Sciences, National Health Research Institutes, Miaoli, Taiwan.
No.213	Biosensor and Biosynthesized Salicylic Acid as Strawberry Anthracnose Disease Control Strategies
	Kai-Wen Chen[1], Erick Wang[2], Lung-Chieh Chen[1], Yu-Wen Chan[2], Wen-Liang Chen[1,2*] [1]Institute of Molecular Medicine and Bioengineering, National Yang Ming Chiao Tung University, 300093 Hsinchu, Taiwan; [2]Department of Biological Science & Technology, National Yang Ming Chiao Tung University, 300093 Hsinchu, Taiwan.
No.214	Molecular Details Underlying Karyopherin Kap114p-TBP Modulated Gene Expression, Conferring Stress Tolerance
	Chung-Chi Liao[1] and Kuo-Chiang Hsia[1,2] [1]Institute of Molecular Biology, Academia Sinica, Taipei 11529, Taiwan; [2]Institute of Biochemistry and Molecular Biology, College of Life Sciences, National Yang-Ming University, Taipei 11221, Taiwan.
No.215	Autophagy selectively degrades miRNAs through RNA-binding protein FUS in HCC
	Pei-Ru Sie, Kai-Ying Lan, and Sheng-Hui Lan [1]Department of Life Sciences and Institute of Genome Sciences National Yang-Ming Chiao Tung University, Taipei 112, Taiwan; [2]Cancer Progression Research Center, National Yang-Ming Chiao Tung University, Taipei, Taiwan.
No.216	The ethanol extract of rice bran suppresses the PMA/A23187-stimulated mast cells through the inhibition of PLCγ/IP3R/PKCμ signaling pathway
	Ting-Wen Wen, Ting-Feng Wu Department of Biotechnology and Food Technology, Southern Taiwan University of Science and Technology, Tainan, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.217	UCHL1 and PSMB5 mitigates HAP40 reduction induced mitochondrial dysfunction in striatal Huntington's disease model cells
	Sin-Yi Lee, Yi-Chun Chou, Zih-Ning Huang, and Lu-Shiun Her* Department of Life Sciences, College of Bioscience and Biotechnology, National Cheng Kung University, Tainan 70101, Taiwan.
No.218	Identification of the molecular mechanisms responsible for KPNA2 nuclear import in cancer cells under oxidative stress
	Jie-Xin Huang and Chia-Jung Yu Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan.
No.219	PAICS Ubiquitination Triggers Phase Separation of de novo Purine Synthesis Pathway Enzymes into Purinosome to Promote Tumor Growth and Survival
	Yi-Hsuan Wang[1,2], Fei-Yun Chen[1], Shu-Yu Lin[1], Ruey-Hwa Chen[1,2,*] [1]Institute of Biological Chemistry, Academia Sinica, Taipei, Taiwan; [2]Institute of Biochemical Sciences, College of Life Science, National Taiwan University, Taipei, Taiwan.
No.220	TERRA lncRNA Promotes Alternative Telomere Lengthening
	Hong-Jhih Shen, Hsueh-Ping Chu Institute of Molecular and Cellular Biology, National Taiwan University, Taipei, Taiwan.
No.221	Mechanobiological mechanism of cyclic stretch-induced cell columnarization
	Lun-Wei Lee[1], Fu-Lai Wen[2] and Ming-Jer Tang[1,2] [1]The Institute of Basic Medical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [2]Department of Physiology, College of Medicine and International Center for Wound Repair and Regeneration, National Cheng Kung University, Tainan, Taiwan.
No.222	Nuclear receptors promote alternative lengthening of telomeres (ALT) through ALT-PML body (APB) formation
	Venus Marie Gaela, Hsuan-Yu Hsia, and Liuh-Yow Chen Institute of Molecular Biology, Academia Sinica, Taipei 115, Taiwan. 中央研究院分子生物研究所
No.223	The regulation of microtubule organization between tubulin-binding cofactor and post-translational modifier
	Hong-Hong Lin, Chia-Hao Hsu, Chan-yen Ou Institute of Biochemistry and molecular biology, College of Medicine, National Taiwan University.
No.224	The roles of atypical cadherins in neuronal growth
	Nian-Thong Tan(陳念彤) , Chan-Yen Ou Institute of Biochemistry and Molecular Biology, College of Medicine, National Taiwan University, Taipei 100, Taiwan.
No.225	Investigating the effect of hyperlipidemia on the metastasis of chemo-surviving colorectal cancer cells
	Nien-Chi Li*, Ben-Kuen Chen Department of Pharmacology, College of Medicine, National Cheng Kung University.
No.226	HDAC8 Regulates Chromatin Replication and Evinces Cancer-Specific Synthetic Lethality with Checkpoint Kinases
	Ting-Yu Chang[1,2], Yan Yan[3], Nian-Zhe Lee[2], Wei-Jan Huang[4], Stanton L. Gerson[3*], Sung-Bau Lee[1,2*] [1]Ph.D Program in Biotechnology Research and Development, College of Pharmacy, Taipei Medical University, Taipei, Taiwan; [2]Master Program in Clinical Genomics and Proteomics, College of Pharmacy, Taipei Medical University, Taipei, Taiwan; [3]Case Comprehensive Cancer Center, Case Western Reserve University, Cleveland, OH, USA; [4]Graduate Institute of Pharmacognosy, College of Pharmacy, Taipei Medical University, Taipei, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.227	Perception of cVA is altered by Wake via hormone coordination and induced inter-male courtship behavior in Drosophila.
	Bo-Ting Liu, Shiu-Ling Chen, Wang-Pao Lee, Sin-Bo Liao, Yi-Jing Li, Wei-Ming Lee, Chia-Chen Lee, Tsai-Feng Fu[*] Department of Applied Chemistry, National Chi-Nan University, 54531 Nantou, Taiwan; Department of Neurology, Chang Gung Memorial Hospital, Linkou, Taiwan; Department of Biochemistry and Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan.
No.228	The Modulatory Role of c-Maf in T Regulatory 17 Cells during Experimental Autoimmune Encephalomyelitogenesis
	Yu-Kai Shu[1], Jia-Ling Dong[2], Ming-Wei Chien[1,4], Shi-Chuen Miaw[3], Huey-Kang Sytwu[1,2,4] [1]Department and Graduate Institute of Microbiology and Immunology, National Defense Medical Center, Taipei, Taiwan; [2]Graduate Institute of Life Sciences, National Defense Medical Center, Taipei, Taiwan; [3]Graduate Institute of Immunology, National Taiwan University College of Medicine, Taipei, Taiwan; [4]National Institute of Infectious Disease and Vaccinology, National Health Research Institutes, Miaoli County, Taiwan.
No.229	Investigation of the role of PSPC1 in different driver mutation contexts of lung adenocarcinoma.
	Ying-Chih Kung, Szu-Shuo Lee, Yuh-Shan Jou Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan.
No.230	CDCP1 promotes the recruitment and polarization of macrophage in urothelial carcinoma cell
	Hoi Lam-Tam, Huei-Sheng Huang Department of Medical Laboratory Science and Biotechnology, College of Medicine, National Cheng Kung University.
No.231	Oral Squamous Cell Carcinomas-Derived Exosomes Deliver MicroRNA-10b-5p and MicroRNA-375 to Induce HUVEC Angiogenesis by Modulating VEGFR Signaling Pathways
	Guan-Hsun Wu, Wan-Ju Chao, Yuan-Ming Hsu, Sung-Tau Chou, Cih-Yuan Fang, Chia-Yun Huang, Shine-Gwo Shiah[*] National Institute of Cancer Research, National Health Research Institutes, Miaoli, Taiwan.
No.232	Tetrahydrocurcumin relieved RPE apoptosis and retinal degeneration induced by sodium iodate
	Tzu-Chun Chen[1], Shun-Fa Yang[1], Hui-Wen Lin[2], Yuan-Yen Chang[3,4] [1]Institute of Medicine, Chung-Shan Medical University, Taichung, Taiwan; [2]Department of Optometry, Asia University, Taichung, Taiwan; [3]Department of Microbiology and Immunology, School of Medicine, Chung Shan Medical University, Taichung, Taiwan; [4]Department of Medical Education, Chung Shan Medical University Hospital, Taichung, Taiwan.
No.233	Stromal cell PD-L1 inhibits anti-tumor immune responses and promote breast cancer progression
	Jia-Yun Yeh[1,2], Yung VLuen Yu[1,2] [1]The Ph.D. Program for Cancer Biology and Drug Discovery, China Medical University, Taichung 404, Taiwan; [2]Center for Molecular Medicine, China Medical University Hospital, Taichung 404, Taiwan.
No.234	A comprehensive bioinformatics workflow for single-cell epigenomics and transcriptomics to uncover regulatory programs in solid tumors
	Fang-Ping Lin Department of Biological Science and Technology, National Chiao Tung University, Hsinchu, Taiwan (R.O.C.).
No.235	MSI2-induced pro-metastatic niche in prolong DEHP exposed breast cancer cells
	Mahendra Jadhao, Li-Fang Wang, Chien Chih Chiu Department of Medicinal and Applied Chemistry, Kaohsiung Medical University, Kaohsiung, Taiwan; Department of Biotechnology, Kaohsiung Medical University, Kaohsiung 807, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.236	An electrochemical biosensor-based platform for comprehensive COVID-19 management
	Erick Wang Department of Biological Science and Technology, National Yang Ming Chiao Tung University, Hsinchu, Taiwan.
No.237	The role of unconventional autophagy in ATP Binding Cassette transporters trafficking for sorafenib resistance in HCC
	Chi-Wen Chu (朱起文)[1] and Sheng-Hui Lan (藍昇輝)[2] [1]Department of Life Sciences and Institute of Genomes Sciences; [2]National Yang Ming Chiao Tung University.
No.238	Combination Therapy of Lurbinectedin and AZD6738 Caused Synthetic Lethality of ALT Cancer
	Liv Weichien Chen[1], Chen-Chia Lo[1], Wei-Wu Chen[2], Hsueh-Ping Chu[1] [1]Institute of Molecular and Cellular Biology, National Taiwan University, Taipei, Taiwan; [2]Department of Oncology, National Taiwan University Hospital, Taipei, Taiwan.
No.239	The impact of ketogenic diet-triggered changes in microbiota or glycosylation on T cell pathogenicity and autoimmune diabetes development in NOD mice
	Ung-Kai Ting[1,2], Shih-Huei Fu[2,3], Ming-Wei Chien[2,3], Huey-Kang Sytwu[2,3] [1]School of Medicine, National Defense Medical Center, Taipei, Taiwan; [2]National Institute of Infectious Disease and Vaccinology, National Health Research Institutes, Miaoli County, Taiwan; [3]Department and Graduate Institute of Microbiology and Immunology, National Defense Medical Center, Taipei, Taiwan.
No.240	Induction of epithelial-mesenchymal transition (EMT) by hypoxia-induced lncRNA RP11-367G18.1 through regulating the histone 4 lysine 16 acetylation (H4K16Ac) mark
	Pei-Hua Peng[1], Joseph Chieh-Yu Lai[2], Jeng-Shou Chang[1], Kai-Wen Hsu[3*], Kou-Juey Wu[1,4,5*] [1]Cancer Genome Research Center, Chang Gung Memorial Hospital at Linkou; [2]Inst. of Biomedical Science, China Medical University; [3]Research Center for Cancer Biology, Inst. of New Drug Development, China Medical University; [4]Institute of Cellular and Organismic Biology, Academia Sinica; [5]Inst. of Clinical Medical Sciences, Chang Gung University.
No.241	Granule neuron progenitor proliferation regulated by TTBK2 is essential for postnatal cerebellar development
	I-Hsuan Lin[1,2], Yeu-Ru Li[3], Chia-Hsiang Chang[3], Yu-Ting Wang[4], Lin Pei-Yi[4], Ting-Yu Su[3], Yu-Wen Cheng[5], Bon-chu Chung[4], Jin-Wu Tsai[1,2*], Won-Jing Wang[1,3*] [1]Taiwan International Graduate Program in Molecular Medicine, National Yang Ming Chiao Tung University and Academia Sinica; [2]Institute of Biochemistry and Molecular Biology, National Yang Ming Chiao Tung University; [3]Institute of Brain Science, School of Medicine, National Yang Ming Chiao Tung University; [4]Institute of Molecular Biology, Academia Sinica; [5]Department of Biotechnology and Laboratory Science in Medicine, National Yang Ming Chiao Tung University.
No.242	Growth Suppression and Cell Cycle G1/S Arrested by Melatonin in Breast Cancer Cell Line and Primary Breast cancer cells
	Chao-Ming Hung[1,2], Kuo-Ting Lee[3], Zhi-Han Sun[4] and Yi-Chiang Hsu[1*] [1]School of Medicine, I?Shou University, Kaohsiung city, Taiwan; [2]Department of General Surgery, E-Da Cancer Hospital, I-Shou University, Kaohsiung, Taiwan; [3]Department of Surgery, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan city, Taiwan; [4]Asia Obesity Medical Research center, E-Da Cancer Hospital, I-Shou University, Kaohsiung, Taiwan.
No.243	Human umbilical cord mesenchymal stem cells-derived exosomes improve nerve regeneration and locomotor function in rats with spinal cord injury
	Tao-Hsiang Yang Department of Medical Research, Mackay Memorial Hospital.

No.	Abstract Title / Authors & Affiliation
No.244	TFEB-dependent Autophagy Activation Supports Cancer Proliferation in the Absence of Centrosomes
	Chien-Han Kao[1,2], Chien-Yung Huang[2], Wann-Neng Jane[3], Hung-Hsiang Hunag[4], and Won-Jing Wang[1,2,*] [1]Institute of Biochemistry and Molecular Biology, National Yang-Ming Chiao-Tung University, Taipei 112, Taiwan; [2]Institute of Biochemistry and Molecular Biology, National Yang-Ming University, Taipei 112, Taiwan; [3]Institute of Plant and Microbial Biology, Academia Sinica, Taipei, 11529 Taiwan; [4]Division of Urology, Department of Surgery, Far Eastern Memorial Hospital, New Taipei City 220, Taiwan.
No.245	Biochemical characterization of protein p38 in mammalian spermatozoa
	Zhu-Qian Wen, Jia-Chen Lo, Min Liu[*] Department of Life Science, College of Science, Chinese Culture University.
No.246	Melatonin Induced CEBPα Expression Suppresses Epithelial-Mesenchymal Transition and Migration by Targeting ZEB1 in Gastric Cancer
	Kai-Jiun Chang, Sheng-Mao Wu, Meei-Ling Sheu Department of Life Sciences, National Chung Hsing University, Taichung, Taiwan.
No.247	Investigating the Role of PAK6 in Patient-Derived Glioblastoma
	Bing Chen Tsai[1], Yao-Yuan Chang[2], Jian-Ying Chuang[3], Po-Wu Gean[2,4], Yuan-Shuo Hsueh[1] [1]Department of Medical Science Industries, College of Health Sciences, Chang Jung Christian University, Tainan, Taiwan; [2]Department of Pharmacology, College of Medicine, National Cheng-Kung University, Tainan, Taiwan; [3]Graduate Institute of Neural Regenerative Medicine, College of Medical Science and Technology, Taipei Medical University, Taipei, Taiwan; [4]Department of Biotechnology and Bioindustry Sciences, College of Bioscience and Biotechnology, National Cheng Kung University, Tainan, Taiwan.
No.248	Differential microRNA expression profiles of IL-12 mediated radiotherapy
	Wei-Hsiang Kung[1], Ching Fang Yu[2], Fang-Shin Chen[3] [1]Department of Medical Imaging and Radiology, Shu-Zen Junior Colledge of Medicine and Management, Kaohsiung, Taiwan; [2]Radiation Biology Research Center, Institute for Radiological Research, Chang Gung Memorial Hospital Linkou Branch, Chang Gung University, Taoyua; [3]Department of Medical Imaging and Radiological Sciences, Chang Gung University, Taoyuan, Taiwan.
No.249	ATM- and ATR-induced primary ciliogenesis promotes cisplatin resistance in pancreatic ductal adenocarcinoma
	Yu-Ying Chao[1,2], Bu-Miin Huang[2,3], I-Chen Peng[4], Pei-Rong Lee[1,2], Yi-Shyun Lai[5], Wen-Tai Chiu[5], Yi-Syuan Lin[1], Shih-Chieh Lin[1,6,7], Jung-Hsuan Chang[4], Pai-Sheng Chen[1,8], Shaw-Jenq Tsai[1,7*], and Chia-Yih Wang[1,2*] [1]Institute of Basic Medical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan. [2]Department of Cell Biology and Anatomy, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [3]Department of Medical Research, China Medical University Hospital, China Medical University, Taichung, Taiwan; [4]Department of Life Sciences, National Cheng Kung University, Tainan, Taiwan; [5]Department of Biomedical Engineering, National Cheng Kung University, Tainan, Taiwan; [6]Institute of Molecular Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [7]Department of Physiology, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [8]Department of Medical Laboratory Science and Biotechnology, College of Medicine, National Cheng Kung University, Tainan, Taiwan.
No.250	Downregulation of High Mobility Group Box 1 by Honokiol inhibits the growth and epithelial Vmesenchymal transition of gastric cancer cells and attenuates peritoneal dissemination via STAT1/STAT3 signaling
	Kuo-Hsiang Fu , Sheng-Mao Wu , Meei-Ling Sheu Department of Life Sciences, National Chung Hsing University, Taichung, Taiwan; Institute of Biomedical Sciences, National Chung Hsing University, Taichung, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.251	ArfGAP1 acts as a GTPase-activating protein for human ADP-ribosylation factor-like 1 protein
	Hsiang-Pu Feng[1], Hsiao-Yun Cheng[2], Ting-Feng Hsiao[1], Tai-Wei Lin[1], Jia-Wei Hsu[3,4], Lien-Hung Huang[1,5], Chia-Jung Yu[1,2,6,7] [1]Graduate Institute of Biomedical Sciences, College of Medicine, Chang Gung University, Taoyuan, Taiwan; [2]Department of Cell and Molecular Biology, College of Medicine, Chang Gung University, Taoyuan, Taiwan; [3]Institute of Molecular Medicine, College of Medicine, National Taiwan University, Taipei, Taiwan4Institute of Biochemical Sciences, College of Life Science, National Taiwan University, Taipei, Taiwan; [5]Department of Neurosurgery, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan; [6]Department of Thoracic Medicine, Chang Gung Memorial Hospital, Linkou, Taoyuan, Taiwan; [7]Molecular Medicine Research Center, Chang Gung University, Taoyuan, Taiwan.
No.252	Green tea epigallocatechin gallate regulated ET-1 stimulation of fat cell growth through multiple pathways.
	An-Ci Siao[1], Tsung-Chen Su[2], Meei-Ju Yang[2], Yi-Wei Tsuei[3], Yen-Yue Lin[1,3], Yow-Chi Kuo[4], and Yung-Hsi Kao[1] [1]Department of Life Sciences, National Central University, Zhongli, Taoyuan City, Taiwan; [2]Tea Research and Extension Station (TRES), Yangmei, Taoyuan City, Taiwan; [3]Department of Emergency, Taoyuan Arms & Forces General Hospital, Taoyuan City, Taiwan; [4]Department of Gastroenterology, Landseed General Hospital, Taoyuan City, Taiwan.
No.253	Effect of Cyproheptadine (CPH) in Eliciting an Immune Response in Urothelial Carcinoma
	Himani Kumari, Chih-Chieh Yeh, Guan-Ling Lin, Yu-Ming Chuang, Wan-Hong Huang, Wen-Long Huang, Michael W.Y. Chan Department of Biomedical Sciences, National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Epigenomics and Human Disease Research Center, National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Center for Innovative Research on Aging Society (CIRAS), National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan.
No.254	Study of anticancer bioactivity of Taiwan natural plant aqueous crude extracts
	An-Ching Hsiao, Chi-Lin Wu, Kai-Fan Lin, Min Liu[*] Department of Life science, College of Science, Chinese Culture University.
No.255	A novel quinoline derivate DFIQ sensitizes lung cancer cells to ferroptosis via ROS and mitophagy dysfunction
	Si-Yan Chou, Yung-Ding Bow, Chien-Chih Chiu Department of Biotechnology, Kaohsiung Medical University, Taiwan.
No.256	Stability tests of Zn-chlorophyllides
	Tsung-Tse Chuang (莊宗澤), Yun-Shiuan Tung, Chih-Hui Yang, Keng-Shiang Huang, Jei-Fu Shaw Department of Biological Science and Technology, I-Shou University, Taiwan; Pharmacy Department of E-Da Hospital, Taiwan; Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan; The School of Chinese Medicine for Post-Baccalaureate, I-Shou University, Taiwan.
No.257	Investigating the Role of Endoreplication in Wrapping Glial Cell Development
	Y. Henry Sun, Chia-Kang Tsao, Ming-Hui Chien Academia Sinica Institute of Molecular Biology, National Chung Cheng University.
No.258	Assess The Discrepancy in Wound Healing of Different Cell Sheets in The Treatment Diabetic Mice
	Yu-Jie Huang (黃鈺絜)[1], Pey-Shyuan Hsieh[1], Rui-Ping Xia[1], Ya-Hua Li[1], Yin-Hua Jheng[1], Yi-Jyun Chen[1], Chih-Huei Yang[1,2,3,*] [1]Department of Biological Science and Technology, I-Shou Universuty, Taiwan; [2]Pharmacy of Department E-Da Hospital, Taiwan; [3]Taiwan Instrument Research Institute, NARLabs, Taiwan. [*]Correspondence: Chih-Hui Yang: chyang@isu.edu.tw
No.259	HDAC7 is important for regulating the DNA damage response
	Li-Yu Tsui, Zhi-Yu Chen and Ching-Shyi Wu Department and Graduate Institute of Pharmacology, College of Medicine, National Taiwan University, 10051 Taipei, Taiwan.

No.	Abstract Title / Authors & Affiliation
No.260	Exosome-Derived LINC00960 and LINC02470 Promote the Epithelial-Mesenchymal Transition and Aggressiveness of Bladder Cancer Cells
	Cheng-Shuo Huang[1,2], Jar-Yi Ho[1,2], Jung-Hwa Chiang[3], Cheng-Ping Yu[1,2,4], Dah-Shyong Yu[2,5] [1]Graduate Institute of Pathology and Parasitology, National Defense Medical Center, Taipei 114, Taiwan; [2]Graduate Institute of Life Sciences, National Defense Medical Center, Taipei 114, Taiwan; [3]Department of Pathology, Catholic Cardinal Tien Hospital, Taipei 231, Taiwan; [4]Department of Pathology, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan; [5]Division of Urology, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan.
No.261	CRMP/UNC-33 organizes microtubule bundles for KIF5-mediated mitochondrial distributionto axon
	Ying-Chun Chen, Hao-Ru Huang, Chia-Hao Hsu, Chan-Yen Ou Institute of Biochemistry and Molecular Biology, College of Medicine, National Taiwan University, Taipei, Taiwan
No.262	Klhl17/Actifilin that associated with Infantile spasm regulates sex-biased differences in spine enlargement, social behavior and seizure susceptibility
	Yung-Jui Lin(林詠瑞)[1,2,3], Hsiao-Tang Hu[2], Tzyy-Nan Huang[2] and Yi-Ping Hsueh(薛一蘋)[2] [1]Joint MS program in Molecular biology, Academia Sinica and NCU; [2]Institute of Molecular Biology, Academia Sinica; [3]Department of Life Sciences, National Central University, Taoyuan, Taiwan.
No.263	High glucose levels heave the cell proliferation of breast cancer cells line (ZR-75-1) in vitro
	Yu-Ching Lin[1], Chi-Chang Chang[2], Chao-Ming Hung[3,4], Wen-Chuan Hsieh[5], Jia-Ying Su[5] and Yi-Chiang Hsu[4] [1]Department of Family Medicine, E-Da Dachang Hospital, Kaohsiung City, Taiwan; [2]Department of Obstetrics & Gynecology, E-Da Hospital, E-Da Hospital/I-Shou University, Kaohsiung city, Taiwan; [3]Department of General Surgery, E-Da Cancer Hospital, I-Shou University, Kaohsiung city, Taiwan; [4]School of Medicine, I-Shou University, Kaohsiung city, Taiwan; [5]Department of Biological Science and Technology, I-Shou University, Kaohsiung city, Taiwan.
No.264	CDDO-TFEA induce cell apoptosis and regulate cell cycle progress by inhibit CyclinA2 and CDK1
	Tai-Hsin Tsai[1,2,3,4], Chun-Fan Chao[5], Yi-Chiang Hsu[6*] [1]Division of Neurosurgery, Department of Surgery, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; [2]Department of Surgery, School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan; [3]Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan; [4]Department of surgery, Kaohsiung Municipal Ta-Tung hospital5. Institute of Molecular Biology, National CHUNG HSING University, Taichung City, Taiwan; [6]School of Medicine, I-Shou University, Kaohsiung city, Taiwan.
No.265	Patchouli alcohol induces the cell cycle G1 stagnation of human cervical cancer cells (CaSki cells)
	Rau Kun-Ming[1*], Chun-Fan Chao[2], and Yi-Chiang Hsu[3*] [1]Department of Hematological Oncology, E-Da Cancer Hospital, Kaohsiung city, Taiwan; [2]Institute of Molecular Biology, National CHUNG HSING University, Taichung City, Taiwan; [3]School of Medicine, I?Shou University, Kaohsiung city, Taiwan.
No.266	CPAP/CD44 axis enhances HCC cancer stemness properties
	Pei-Wei Chong, Ruo-Yu Chen, Pao-Hsuan Huang and Liang-Yi Hung[*] Department of Biotechnology and Bioindustry Sciences, College of Bioscience and Biotechnology, National Cheng Kung University, Tainan 70101, Taiwan.
No.267	Impacts of silkworm pupa-grown Cordyceps militaris fruiting bodies on the transforming growth factor-β1 evoked epithelial-mesenchymal transition of fibroblast cells
	Wan-Yin Shih and Ting-Feng Wu[*] Department of Biotechnology and Food Technology, Southern Taiwan University of Science and Technology, Tainan, Taiwan. wutingfe@stust.edu.tw

No.	Abstract Title
	Authors & Affiliation
No.268	Epigenetic silencing of STAT3-targeted miR-193a, by constitutive activation of JAK/STAT signaling, leads to tumor progression through overexpression of YWHAZ in gastric cancer
	Jie-Ting Low, Kuo-Liang Wei, Jian-Liang Chou, Yin-Chen Chen, Guan-Ling Lin, Jing-Lan Liu, Te-Sheng Chang, Wei-Ming Chen, Yung-Yu Hsieh, Pearlly S. Yan, Yu-Ming Chuang, Jora M. Lin, Shu-Fen Wu, Ming-Ko Chiang, Chin Li, Cheng-Shyong Wu, Michael W. Chan Department of Biomedical Sciences, National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Epigenomics and Human Disease Research Center, National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Center for Innovative Research on Aging Society (CIRAS), National Chung Cheng University, Min-Hsiung, Chia-Yi, Taiwan; Division of Gastroenterology, Chang Gung Memorial Hospital, Taiwan; Department of Anatomical Pathology, Chang Gung Memorial Hospital, Taiwan; Division of Hematology, Wexner Medical Center, The Ohio State University, United States.
No.269	CPYPP induces paraptosis-like cell death in cancer cells
	Shih-Kai Chiang, Ling-Chu Chang, Shuen-Ei Chen Department of Animal Science, National Chung Hsing University, Taichung 40227, Taiwan; Center for Molecular Medicine, China Medical University Hospital, Taichung 404, Taiwan.
No.270	Cucurbitacin E causes proliferation inhibition and mitosis arrest in Endometrial adenocarcinoma Cells
	Tien-Chou Soong[1], Zhi-Han Sun[1] and Yi-Chiang Hsu[2*] [1]Asia Obesity Medical Research center, E-Da Cancer Hospital, I-Shou University, Kaohsiung, Taiwan; [2]School of Medicine, I?Shou University, Kaohsiung city, Taiwan.
No.271	Cell Cycle G2/M Delayed and Apoptosis Induction by Cucurbitacin I in Endometrial adenocarcinoma Cells
	Chi-Chang Chang[1], Zhi-Han Sun[2] and Yi-Chiang Hsu[3*] [1]Department of Obstetrics & Gynecology, E-Da Dachang Hospital, Kaohsiung city, Taiwan; [2]Asia Obesity Medical Research center, E-Da Cancer Hospital, I-Shou University, Kaohsiung, Taiwan; [3]School of Medicine, I?Shou University, Kaohsiung city, Taiwan.
No.272	To explore the effect of Glutaminase inhibitors on lung cancer treatment and the regulation and influence of the cGAS-STING pathway
	Li-Jhen Tung, Wan-Jou Shen, Wei-Jan Wang[*] Department of Biological Science and Technology, China Medical University.
No.273	Glutamine Deprivation Influence Innate Immunity In Lung Cancer
	Yu-Hsuan,Chen BWan-Jou,Shen BWei-Jan,Wang[*] Department of Biological Science and Technology China Medical University.
No.274	JC virus-like particles linking with prostate-specific membrane antigen antibody inhibited Prostate cancer cells proliferation
	Jung-Hsiu Su, Chiung-Hua Huang, Pei-Lain Chen[*] Department of Medical Laboratory Science and Biotechnology, Central Taiwan University of Science and Technology.
No.275	Reversing non-alcoholic fatty liver disease and type-II diabetes via antagonized stress-induced Apolipoprotein J
	Hung-Yu Sun[1,2,3*], Shuangdi Duan[1,2], Nong Qin[1,2] [1]College of Biology, Hunan University, Changsha, 410000; [2]Institute of Pathogen Biology and Immunology, Hunan Provincial Key Laboratory of Medical Virology, Hunan University, Changsha, 410000; [3]Institute of Molecular Medicine, College of Medicine, National Cheng Kung University, Tainan, 700. [*]Correspondence: Hung-Yu Sun, s5893149,gmail.com
No.276	Investigate the characteristic and muscle endurance of different species of ornamental fish
	Chun-Cheng Hsu[1], BJun-Yi Liao[1], BJun-Liang Zhang[1], BPo-Jui Hsu[2,3,4] [1]New Taipei Municipal Yong-Ping High School; [2]Department of Laboratory Medicine, Mackay Memorial Hospital; [3]Department of Nursing, MacKay Medical College; [4]Department of Medical Laboratory Science and Biotechnology, Yuanpei University of Medical Technology.