

3:

Publication of
Faculty Members

THE LATEST THREE YEARS

教授著作目錄

N
T
H
U

BME



國立清華大學 生物醫學工程研究所

National Tsing Hua University
Institute of Biomedical Engineering

TEL: +886 (3) 5715131 Ext 35500

FAX or Direct Dial: +886 (3) 5162595

101, Section 2, Kuang-Fu Road, Hsinchu, Taiwan 30013

(February, 2026)

中華民國一五年二月



Faculty Members

1. 宋信文 Hsing-Wen Sung, Ph.D.....1
2. 李國賓 Gwo-Bin Lee, Ph.D.....7
3. 李泓邦 Hung-Pang Lee, Ph.D.....18
4. 吳志成 Chih-Cheng Wu, MD.20
5. 林幸瑩 Hsing-Ying Lin, Ph.D.27
6. 黃玠誠 Chieh-Cheng Huang, Ph.D.33
7. 裘正健 Jeng-Jiann Chiu, Ph.D.36
8. 萬德輝 Dehui Wan, Ph.D.40
9. 魯才德 Tsai-Te Lu, Ph.D.46
10. 鄭兆珉 Chao-Min Cheng, Ph.D.....55



Hsing-Wen Sung, Ph.D.

National Chair Professor

Tsing Hua Distinguished Chair Professor

Department of Chemical Engineering/Institute of Biomedical Engineering

National Tsing Hua University

Hsinchu, Taiwan (ROC)

Email: hwsung@mx.nthu.edu.tw

Hsing-Wen Sung is a National Chair Professor, Tsing Hua Distinguished Chair Professor, and NTHU-Novatek Distinguished Talent Chair in the Department of Chemical Engineering and the Institute of Biomedical Engineering at National Tsing Hua University. He earned his Ph.D. from the Department of Chemical Engineering/Biomedical Engineering Program at the Georgia Institute of Technology in May 1988. Professor Sung's research focuses on biomaterials, tissue engineering, and drug/gene delivery. His outstanding contributions have garnered him several accolades, including being recognized as a Fellow of the National Academy of Inventors (NAI), Fellow of the American Institute for Medical and Biological Engineering (AIMBE), and Fellow of the International Union of Societies for Biomaterials Science and Engineering (IUSBSE). He is also an Academician of the Asia Pacific Academy of Materials (APAM). In addition to these distinctions, Professor Sung has received esteemed awards such as Elsevier 2015 Biomaterials Best Paper Award and the 2016 TERMIS-AP Outstanding Scientist Award. Professor Sung's significant contributions extend to his editorial roles, serving on the Editorial/Advisory Boards of prestigious journals like the Journal of Controlled Release, Advanced Healthcare Materials, and Advanced Materials. Furthermore, he has been a Handling Editor for Biomaterials. With a remarkable publication record, Professor Sung has authored 340 scientific papers and holds an impressive 137 international patents. His research has left a substantial impact, evident in over 37,097 citations and an h-index of approximately 105, as reported by Google Scholar.

Publication List

February 2026

A-1. Refereed Journal Papers (*Corresponding Author)

2025

1. Cam-Hoa Mac, Pei-Ju Chang, Li-An Chu, Ya-Hui Lin, Jui-To Wang, Cheng-Yueh Lin, Yu-Chen Yuan, Yuan Yao, Dien Thi My Nguyen, Yen Chang, Yin-Hsu Chen, Mai Thanh Thi Nguyen, Yu-Jung Lin*, **Hsing-Wen Sung***, “Noninvasive Oral Magnetolectric Neuromodulation for Parkinson’s Disease Therapy,” *Nature Biomedical Engineering* (IF 26.7) (Revision under Review).
2. Cam-Hoa Mac⁺, Yu-Wei Chiang⁺, Hong-Nhung Nguyen⁺, Jui-To Wang⁺, Li-An Chu, Ya-Hui Lin, Van Khanh Nguyen, Shih-Kai Lo, Yen Chang, Mai Thanh Thi Nguyen, Qian Yao Zhang, Yu-Jung Lin*, **Hsing-Wen Sung***, “Chemically Programmed Prodrug Nanoparticles for Precise Oral Dopamine Delivery to Deep Brain Regions in Parkinson’s Disease,” *Advanced Materials* (IF 26.8) (Revision under Review)
3. Cam-Hoa Mac⁺, Chen-Hsuan Kuo⁺, I-Wei Wang⁺, Yu-Jung Lin, Cheng-Yueh Lin, Hong-Nhung Nguyen, Ninh-Son Pham, Shih-Kai Lo, Wen-Wei Wu, Hua-Jing Huang, Yen Chang, Hsiao-Huang Chang, Hao-Ji Wei*, **Hsing-Wen Sung***, “Oral Magnetolectric Neuroimmunomodulation via the Gut–Brain–Spleen–Heart Axis for Noninvasive Atrial Fibrillation Therapy,” *Advanced Materials*, e16956 (IF 26.8)
4. Lam-Duc-Huy Nguyen⁺, Sheng-Yao Peng⁺, Cam-Hoa Mac⁺, Nhien Nguyen, Shih-Kai Lo, Po-Hsi Lin, Ninh-Son Pham, Hsiao-Huang Chang, Yu-Jung Lin*, **Hsing-Wen Sung***, “Advances in hydrogen delivery strategies for therapeutic applications” *Advanced Drug Delivery Reviews*, 115734. (2025). (IF 17.6)
5. Po-Kai Luo⁺, Wan-An Chang⁺, Sheng-Yao Peng⁺, Li-An Chu, Ya-Han Chuang, Lam-Duc-Huy Nguyen, Jhih-Syuan Guo, Hao-Chi Wei, Po-Liang Lai, Hsiao-Huang Chang, Kuan-Lin Wang, Yin-Hsu Chen, **Hsing-Wen Sung***, “Endogenous Macrophages as "Trojan Horses" for Targeted Oral Delivery of

- mRNA-Encoded Cytokines in Tumor Microenvironment Immunotherapy” *Biomaterials*, 325 (2026), 123620. (IF 12.9)
6. Putry Yosefa Siboro, Nhien Nguyen, Shih-Kai Lo, Fwu-Long Mi, Wen-Wei Wu, Che-Hung Wang, Yun-Ching Chen, Wei-Lun Pan, Sheng-Yao Peng, Lam-Duc-Huy Nguyen, Kun-Ju Lin*, **Hsing-Wen Sung***, “Innate Immunity-Guided Macrophage-Homing Nanoplatfom for Oral Tumor Immunotherapy and Real-Time Deep-Tissue Imaging in Pre-Clinical Models,” *Advanced Materials*, 2025, e07607. (IF 26.8)
 7. Nhien Nguyen⁺, Tuyet-Mai Hoang⁺, Tun-Yu Huang⁺, Lam-Duc-Huy Nguyena, Hsiao-Huang Chang, Yen Chang, Mai Thanh Thi Nguyend, Kun-Ju Line, Chun-Chieh Chen*, **Hsing-Wen Sung***, “Macrophage-hitchhiked, effervescence-induced nanoemulsions for enhanced oral chemotherapy and immunotherapy: Impact on absorption route,” *Biomaterials*, 316, 123019, 2025. (IF 12.9)
 8. Adrian Tabora Dychiao⁺, Ting-Hsuan Lu⁺, Sheng-Yao Peng, Cheng Fan, Siyang Song, Chongyu Zhang, Minyao Wang, Sophia Shi, Jun Wu, Shu-Hong Li, Yen Chang, **Hsing-Wen Sung***, Ren-Ke Li*, “Noninvasive assessment of a bioconductive patch for treating atrial fibrillation with magnetic resonance imaging” *Journal of Controlled Release*, 380, 317-329. (IF 11.5)
 9. Chong-Yu Zhang⁺, Cheng Fan⁺, Shu-hong Li, Jun Wu, Yvonne Ziyi Peng, **Hsing-Wen Sung**, Shiming Liu*, Ren-Ke Li*, “A conductive polymer restores connexin43 expression through the suppression of mitogen-activated protein kinases to improve intercellular communication and alleviate atrial fibrillation,” *Acta Biomaterialia*, 196, 123-135. (IF 9.6)
 10. Cam-Hoa Mac⁺, Giang Le Thi Nguyen⁺, Dien Thi My Nguyen⁺, Sheng-Min Huang, Hsu-Hsia Peng, Yen Chang, Shih-Kai Lo, Hui-Hua Kenny Chiang, Yuan-Zhen Yang, Hsiang-Lin Song, Wei-Tso Chia*, Yu-Jung Lin*, **Hsing-Wen Sung***, “Noninvasive Vagus Nerve Electrical Stimulation for Immune Modulation in Sepsis Therapy” *Journal of the American Chemical Society*, 147 (10), 8406-8421, 2025. (IF 15.6)

2024

11. Po-Kai Luo, Hui-Min Ho, Min-Chun Chiang, Li-An Chu, Ya-Han Chuang, Ping-Chiang Lyu, I-Chen Hu, Wan-An Chang, Sheng-Yao Peng, Jayachandran Jayakumar, Hsin-Lung Chen, Ming-Hsi Huang*, **Hsing-Wen Sung***, “pH-Responsive β -Glucans-Complexed mRNA in LNPs as an Oral Vaccine for Enhancing Cancer Immunotherapy”, *Advanced Materials*, 36 (33), 2404830, 2024. (IF 26.8).
12. Van Khanh Nguyen, Nhien Nguyen, Zhe-Cheng Li, Chao-Min Cheng, Jui-To Wang, Yu-Wei Chiang, Hsiang-Lin Song, Shih-Kai Lo, Cam Hoa Mac, Yen Chang, Wei-Tso Chia*, and **Hsing-Wen Sung***, “Inflammation-Activated Endogenous Macrophage-Mediated Prodrug Delivery System Overcoming Biological Barriers for Enhanced Oral Meningitis Therapy”, *Advanced Functional Materials*, 34 (32), 2401570, 2024. (IF 19.0)
13. Adrian Tabora Dychiao, Ting-Hsuan Lu, Siyang Song, Fan Chen, Minyao Wang, Jun Wu, Shuhong Li, Sheng-Yao Peng, Yen Chang, **Hsing-Wen Sung***, and Ren-Ke Li*, “Noninvasive assessment of a bioconductive patch for treating atrial fibrillation with magnetic resonance imaging,” *Journal of Controlled Release*, (Editor's Selection for Cover Article) (SCI IF 10.5).
14. Yichong Zhang, Alina Yao, Jun Wu, Shuhong Li, Minyao Wang, Zexu Peng, **Hsing-Wen Sung**, Baoguo Jiang*, Ren-Ke Li*, “Conductive Hydrogel Restores Electrical Conduction to Promote Neurological Recovery in a Rat Model”, *Tissue Engineering, Part A*, 30 (17-18), 577-587, 2024. (IF 2.9)
15. Cam-Hoa Mac, Hsien-Meng Tai, Sheng-Min Huang, Hsu-Hsia Peng, Amit Kumar Sharma, Giang Le Thi Nguyen, Pei-Ju Chang, Jui-To Wang, Yen Chang, Yu-Jung Lin*, **Hsing-Wen Sung***, “Orally Ingested Self-Powered Stimulators for Targeted Gut–Brain Axis Electrostimulation to Treat Obesity and Metabolic Disorders”, *Advanced Materials*, 36 (21), 2310351, 2024. (IF 26.8)
16. Putry Yosefa Siboro⁺, Amit Kumar Sharma⁺, Pei-Jhun Lai, Jayachandran Jayakumar, Fwu-Long Mi, Hsin-Lung Chen, Yen Chang*, **Hsing-Wen Sung***, "Harnessing HfO₂ Nanoparticles for Wearable Tumor Monitoring and Sonodynamic Therapy in Advancing Cancer Care" *ACS Nano*, 18 (3), 2485-2499, 2024. (IF 16.0)

17. Cheng-Yu Wu⁺, Cam-Hoa Mac⁺, Tung-Han Yang⁺, Khanh Nguyen, Shih-Kai Lo, Yen Chang, Po-Liang Lai, Yu-Jung Lin*, **Hsing-Wen Sung***, "Nanoscale Photocatalytic Hydrogen Production System Mitigates Inflammation by Harnessing Glycolysis Waste", *Chemical Engineering Journal*, 476, 146614, 2023. (SCI IF 13.3)
18. Yu-Jung Lin, Po-Kai Luo, Huei-Rou Su, Hung-Yun Lu, Wan-An Chang, Min-Chun Chiang, Hsin-Lung Chen, Kai Chen, Hao-Ji Wei*, Kun-Ju Lin*, **Sung, H. W.***, "A Low-Energy Emulsification Platform Based on a Diet Coke–Mentos Reaction-Derived Bubbly Flow for Formulating Various Emulsions as Drug Carriers", *Biomaterials*, 301, 122264, 2023. (SCI IF 12.8)
19. Kuan-Hung Chen, Tun-Yu Huang, Nhien Nguyen, Yu-Tzu Yu, Yu-Jung Lin, Hsiang-Lin Song, Jui-To Wang, Hsin-Lung Chen, **Sung, H. W.*** "Macrophage-Hitchhiked Orally Administered β -Glucans-Functionalized Nanoparticles as "Precision-Guided Stealth Missiles" for Targeted Pancreatic Cancer Therapy", *Advanced Materials*, 35 (40), 2304735, 2023. (SCI IF 27.4)
20. Chih-Wei Chou, Wei-Tso Chia, Cam-Hoa Mac, Cheng-Yu Wu, Chun-Chieh Chen, Hsiang-Lin Song, Yi-Hsuan Lin, Yu-Jung Lin*, and **Sung, H. W.***, "Selective Accumulation of Ionic Nanocrystal H₂ Storage System as an In Situ H₂/Boric Acid Nanogenerator Fights against Ethanol-Induced Gastric Ulcers", *Chemical Engineering Journal*, 463, 142373, 2023. (SCI IF 13.3)

B. Patents

Taiwan

1. 宋信文, 羅柏凱, 張萬安, "用以增強癌症免疫治療的口服疫苗, ORAL VACCINE FOR ENHANCING CANCER IMMUNOTHERAPY," 申請日期:2024/09/10序號:J2P112080-TW (已核准)
2. 宋信文, 陳冠宏, 黃敦域, 黃素然阮, 林鈺容, 余祐慈, "口服醫藥組合物、其製備方法及治療癌症之套組, ORAL PHARMACEUTICAL COMPOSITION, METHOD FOR FABRICATING THE SAME AND KIT FOR TREATING CANCER," 公開號: TW202423396A

3. 宋信文, 陳柏銘, 潘玟仔, 繆養寶, 羅柏凱, “尖刺狀金屬有機框架、其製備方法以及治療癌症之套組, SPIKY METAL ORGANIC FRAMEWORK, METHOD FOR FABRICATING THEREOF, AND TEST KIT FOR CANCER TREATMENT,” 公開號: TW202200116A
4. 宋信文, 繆養寶, 陳冠宏, “口服藥物組成物及其用途, ORAL DRUG COMPOSITION AND USES THEREOF,” 2022年中華民國專利發明I783175 (專利權起訖日: 2022/11/11 ~ 2039/09/09)

United States

5. Sung, H.-W., Chen, K.-H., Huang, T.-Y., Nguyen, N. H. T., Lin, Y.-J., Yu, Y.-T., “Oral Pharmaceutical Composition, Method for Fabricating Thereof, and Kit for Treating Cancer,” (USPTO 18/124,129, filed on 03/21/2023. U.S. Patent No. US20240197911A1, 06/20/2024)
6. Sung, H.-W., Chen, P.-M., Pan, W.-Y., Miao, Y.-B., Luo, P.-K., “Spiky metal organic framework, method for fabricating thereof, and kit for treating cancer,” (USPTO 17/205,732, filed on 03/18/2021. U.S. Patent No. US20210393781A1, 10/17/2023)
7. Sung, H.-W., Miao, Y.-B., Chen, K.-H., “Oral Drug Delivery System and Method for Fabricating Thereof,” (USPTO 18/093,931, filed on 01/06/2023. U.S. Patent No. US20230157956A1, 05/25/2023) (Abandoned)
8. Sung, H.-W., Miao, Y.-B., Chen, K.-H., “Oral Drug Composition and Use Thereof,” (USPTO 16/810,983, filed on 03/06/2020. U.S. Patent No. US11278630B2, 03/22/2022)



李國賓 Gwo-Bin Lee, Ph.D.

Tsing Hua Distinguished Chair Professor
Institute of Biomedical Engineering
Department of Power Mechanical Engineering
Institute of NanoEngineering and Microsystems
National Tsing Hua University
Hsinchu, Taiwan
Email: gwobin@pme.nthu.edu.tw

Gwo-Bin Lee received his B.S. and M.S. degrees in Department of Mechanical Engineering from National Taiwan University in 1989 and 1991, respectively. He received his Ph.D. in Mechanical & Aerospace Engineering from University of California, Los Angeles, USA in 1998. Dr. Gwo-Bin Lee is currently a Distinguished Chair Professor in the Department of Power Mechanical Engineering at National Tsing Hua University. His research interests lie on nano-biotechnology, micro/nanofluidics and their biomedical applications. He is the director of “Microfluidic Biochips Lab”. Dr. Lee has been very active in the field of micro/nanofluidic systems, and has developed integrated micro/nano systems incorporated with nano/biotechnology for biomedical applications. He has developed several micro/nano-scale platforms for cell, protein, and DNA manipulation and detection. He has developed several micro/nano-scale platforms for cell, protein, and DNA manipulation and detection. He has also worked on nano-fluidics for a variety of biomedical applications, including optically-induced dielectrophoresis (ODEP) for manipulation/sorting of nano-particles (including carbon nanotube (CNT), extracellular vesicles (EVs), nanogolds etc.), ssDNA aptamer screening, synthesis of nanoparticles (gold, iron oxide etc.) on integrated micro-/nanofluidic platforms, nanoparticles for electromagnetic thermotherapy (EMT), DNA stretching by using micromachined magnetic tweezers, nano-sized magnetic beads for pretreatment of sample purification and generation of nano-electrosprays for mass spectrometry. Dr. Lee has published over 380 SCI journal papers, 480 conference papers, and filed 163 patents (133 patents granted) in the past 27 years. In Google Scholar, citations of all Dr. Lee’s papers are 27,800 times with an h-index of 84. He also published 10 book chapters.

He has served as a technical or organizing committee member in many international conferences. He was General Co-chair of Micro TAS 2018, General Co-chair of IEEE NEMS 2014, General Co-chair of IEEE MEMS 2013, General chair of IEEE NEMS 2011, and General co-chair of IEEE NANOMED 2013. He was elected as one of 10-14 directors of Chemical & Biological Microsystems Society (CBMS) in 2022.

He has received several academic awards, including IEEE Robert Bosch Micro

and Nano Electro Mechanical Systems Award (2025) (the highest honor in MEMS), 國家科學及技術委員會 112 年度傑出特約研究獎 (Distinguished Researcher Award, NSTC), 孫方鐸教授力學獎章(中華民國力學學會最高榮譽)(2022), TECO Award (2021)(Biomedical Engineering), Ministry of Education Academic Award (2017), Dragon Thesis Award (2002), Distinguished Research Award from Engineering School of National Cheng Kung University (2002), Distinguished Young Engineer Award from Chinese Engineering Society (2003), K. T. Lee Research Award from K. T. Lee Foundation (2004), Distinguished Mechanical Engineer Award from Chinese Mechanical Engineering Society (2004), Distinguished Young Electrical Engineer Award from Chinese Electrical Engineering Society (2005), Young People of the Year (2006), Distinguished Engineering Professor from Chinese Mechanical Engineering Society (2006), Engineering Professor Award from Southern Division of Chinese Engineering Society (2007), Excellent Research Award from National Science Council /Ministry of Science and Technology in Taiwan (2007, 2011, 2014), National Innovation Award (2008, 2010, 2012, 2013, 2016), Distinguished Engineering Professor Award from Chinese Engineering Society (2009), Distinguished Kuo-Ting Lee Researcher Award from Kuo-Ting Lee Foundation (2009), and Outstanding Inventor Award (2011).

He was the Fellow of Society of Theoretical and Applied Mechanics and the Fellow of Chinese Society of Mechanical Engineering. He was an elected ASME Fellow in 2013, an elected RSC Fellow in 2014, elected IET Fellow in 2015, elected IEEE Fellow in 2017, elected AIBMB Fellow in 2018 and elected NAI Fellow in 2021. He has been invited in various conferences for plenary and keynote talks. He is Editor-in-chief of Microfluidics and Nanofluidics (SCI-indexed). He was joint Editor-in-chief of Micro and Nano Letters (SCI indexed) and Associate Editor-in-chief of IEEE Transactions of Nanotechnology (SCI indexed). He also serves as editor for several journals, including Scientific Reports (SCI indexed), IET Bionanotechnology (SCI indexed), Micro and Nanosystem, Microfluidics and Nanofluidics (EIC, SCI indexed) and Recent Patents on Nanotechnology. He was an elected member of International Academy of Engineering and European Academy of Sciences and Arts.

As a rare pioneer on biochips in Taiwan, Prof. Gwo-Bin Lee has developed integrated microfluidic and nanotechnology systems capable of automating complicated bioprocesses on biochips for a variety of biomedical applications, including efficient screening of biomarkers (affinity reagents), fast diagnosis of infectious diseases and electromagnetic thermotherapy of tumors. Here are his three major contributions:

1. Biomarker screening

Prof. Lee invented a new method by fine-tuning the microfluidic shear force during the biomolecular screening so that non-specific binding between biomolecules could be greatly eliminated. For examples, this new technology has been substantiated for in vitro screening of aptamers and peptides that have an affinity 100 times higher than natural antibodies, resulting in a shortened screening time (down to ~10%), reduced reagent/sample consumption, and increased efficacy of aptamer and peptide screening. The most direct applications of this technology are for the diagnosis of cardiovascular diseases, cancers, diabetes and infectious diseases. His works on this subject has produced highly cited publications and patents (15 issued and 5 pending) in both Taiwan and USA.

2. Fast diagnoses of infectious diseases

Fast diagnoses of seasonal and epidemic infectious diseases are important but difficult, as they are known to be time-consuming and labor-intensive. Prof. Lee has demonstrated single-biochip solutions for fast diagnosis of infectious diseases such as methicillin-resistant staphylococcus aureus (MRSA) and influenza virus. He pioneered various microdevices, such as pumps, valves, mixers and bioreactors, so that the entire bioprocesses for molecular diagnosis (including sample treatment, virus/bacteria isolation/purification, DNA/RNA extraction, nucleic acid amplification and optical detection) can be executed within a miniature integrated device with < 30 minutes and with a detection limit down to a single cell/virus. This is enabled by using specially conjugated magnetic beads (i.e., beads with a combination of multiple high-affinity capturing probes such as antibodies, aptamers, peptides, nucleic acids and antibiotics on the beads) so that the capture of targeted bacteria/viruses or biomolecules could be achieved even in complicated biosamples with efficient mixing and collection. This technology has already been transferred to local Taiwan industries for commercialization (e.g., Jabil Green Point Inc., Taiwan). In addition to disease diagnosis, this technology is also under development for other important applications for virus/bacteria “subtypes” screening, antibiotics-resistant bacteria screening, and effective dose optimization of antibiotics.

3. Electromagnetic thermotherapeutic devices for cancer treatment

Pro. Lee’s group has developed a new electromagnetic thermotherapeutic (EMT) device using electromagnetically heated stainless-steel needle arrays. Under a specially designed high-frequency alternating electromagnetic field, the minimally invasive device could be precisely heated to treat tumors. It features fast and efficient heating using both eddy currents and magnetic hysteresis. A spin-off company from his lab (Taiwan Earning Inc.) has commercialized this technology in both Taiwan and China. As an official product, his EMT device has been routinely used in pets without damaging normal tissues.

Publication List

February 2026

A-1.Referred Journal Papers and Book Chapters (*Corresponding Author)

1. Swati T. Gurme, Yu-Ting Su, Bhushan Koparde, Lily Hui-Ching Wang** and Gwo-Bin Lee*, “An Integrated Microfluidic System for Automated Extraction of In-vitro Transcribed mRNAs via Probe-Coated Magnetic Beads,” Lab on a chip, DOI: 10.1039/D5LC00938C, 2026, 26, 471 – 480, 2026 (SCI; Impact factor=7.517) 5/77=6.5% (BIOCHEMICAL RESEARCH METHODS) (Co-corresponding author).
2. Hao-Yen Wang, Shih-Yu Shen, Lily Hui-Ching Wang** and Gwo-Bin Lee*, „An integrated microfluidic system with shear force control for automatically modified mRNA display technique for screening high-specificity peptide probes,“ Lab on a chip, doi.org/10.1039/D5LC00914F, vol. 26, 143– 153, 2026 (SCI; Impact factor=7.517) 5/77=6.5% (BIOCHEMICAL RESEARCH METHODS) (Co-corresponding author).
3. Yu-Ting Su, Yi-Cheng Tsai, Chien-Jui Huang, Nai-Jung Chiang, Anandaraju Bandaru, Shang-Cheng Hung**, Yan-Shen Shan**, and **Gwo-Bin Lee***, „Optimization of a Microfluidic System for Automated Detection of Cholangiocarcinoma Cells in Bile,“ Biosensors and Bioelectronics, doi.org/10.1016/j.bios.2025.118330, Vol. 296, 118330, 2026 (SCI; Impact factor = 12.6) 2/86=2.3% (CHEMISTRY, ANALYTICAL) (**Co-corresponding author**).
4. Ko-Hua Lin, Chih-Hung Wang, Ying-Jun Lin, Wen-Yen Huand, Yan-Shen Shan, Huey-Pin Tsai,**, and **Gwo-Bin Lee***, „A Portable, Electromagnetically-Driven Microfluidic System for Molecular Diagnosis of SARS-CoV-2 and Influenza A/B Viruses,“ Sensors and Actuators B: Chemical, doi.org/10.1016/j.snb.2025.139324, Vol. 451, 139324, 2026. (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). (**Co-Corresponding author**).
5. Cheng-Hsuan Chung, Chih-Hung Wang, and **Gwo-Bin Lee***, „Size-Selective Separation of Extracellular Vesicles in Culture Medium via Optically-induced Dielectrophoresis on a Multi-Channel Microfluidic Chip,“ Sensors and Actuators B: Chemical, doi.org/10.1016/j.snb.2025.139170, Vol.449, 139170 2026 (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). (**Corresponding author**).
6. Yang-Sheng Shao, Yi-Cheng Tsai, Chih-Hung Wang, To-Wen Chen, Keng-Fu Hsu and Gwo-Bin Lee*, „An integrated microfluidic system equipped with a shear

- force control device for optimized selection of high-affinity, high-specificity aptamers targeting folate receptor alpha," *Analytica Chimica Acta*, doi.org/10.1016/j.aca.2025.344827, Vol. 1381, 344827, 2026 (SCI, Impact factor=6.911) 8/86=9.3% (Chemistry, Analytical) (Corresponding author).
7. Krishnagopal Maiti, Guan-Wen Huang, Yun-Hao Zhuang, Chih-Hung Wang, Jia-Ru Chang, Medel Manuel L. Zulueta, Chiao-Chu Ku, Shih-Ching Wang, Chia-Lin Chyan*, Horng-Yunn Dou*, **Gwo-Bin Lee*** & Shang-Cheng Hung*, „Synthetic heparan sulfate hexadecasaccharide for detection of Mycobacterium tuberculosis," *Journal of American Chemical Society*, doi.org/10.1021/jacs.5c14234, 2025 (SCI; impact factor=15.1) 17/239 =7.1% (CHEMISTRY, MULTIDISCIPLINARY) (Co-corresponding author).
 8. Sasi Kiran Boilla, Yi-Cheng Tsai, Yan-Shan Shan*, and **Gwo-Bin Lee***, „Isolation of Circulating Tumor Cells Via Pearl-Like, Bead-Chain Magnetic Structures on a Microfluidic Device," *Sensors and Actuators B: Chemical*, vol. 441, 138037, 2025 (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). (Co-Corresponding author).
 9. Sung-Chi Chang, Chih-Hung Wang, Kuang-Hung Cheng and **Gwo-Bin Lee***, „Aptamer-based Arrayed Microneedle Biosensor to Monitor C-Reactive Protein for Monitoring Risk of Cardiovascular Diseases," *Sensors and Actuators B: Chemical*, doi.org/10.1016/j.snb.2025.137949, 2025. (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). (Corresponding author).
 10. Yi-Cheng Tsai, Jui-Lin Chang, Nai-Jung Chiang, Chien-Jui Huang, Yu-Shan Huang, Anandaraju Bandaru, Shang-Cheng Hung*, Yan-Shen Shan*, and **Gwo-Bin Lee***, „The application of CAPTURE assay for early diagnosis and prognosis in bile and blood of cholangiocarcinoma," *JCO Precision Oncology*, doi: 10.1200/PO-24-00728, 2025 (SCI; Impact factor=5.3) 61/322=18.9% (*Oncology*) (Co-corresponding author).
 11. Yi-Da Chung, Yi-Cheng Tsai, Chi-Hung Wang and **Gwo-Bin Lee***, „Aptamer Selection via Versatile Microfluidic Platforms and Their Diverse Applications," *Lab on a chip*, 10.1039/D4LC00859F, vol. 25, pp. 1047-1080, 2025 (SCI; Impact factor=7.517) 5/77=6.5% (BIOCHEMICAL RESEARCH METHODS) (Corresponding author).
 12. Kuan-Yu Chen, Yi-Cheng Tsai, Feng-Chih Kuo, Mel S. Lee, Chih-Chien Hu** and **Gwo-Bin Lee***, "A Portable Optical Detection System for Rapid Quantification of Two Rheumatoid Arthritis Biomarkers," *Analytica Chimica Acta*, 10.1016/j.aca.2024.343493, 2025 (SCI, Impact factor=6.911) 8/86=9.3% (Chemistry, Analytical) (Co-corresponding author).

13. To-Wen Chen, Chih-Hung Wang, Feng-Chih Kuo, Mel S. Lee**, and Gwo-Bin Lee*, „A dual-aptamer sandwich assay by detection of c-reactive protein in synovial fluid on an integrated microfluidic system for diagnosis of periprosthetic joint infection,“ *Sensors and Actuators B: Chemical*, 10.1016/j.snb.2024.136932, 2025 (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). **(Co-corresponding author)**.
14. Yi-Cheng Tsai, Yang-Sheng Shao, Chih-Hung Wang, Keng-Fu Hsu and Gwo-Bin Lee*, „Optimizing the screening process for inhibitory aptamers specific to folate receptor alpha on an integrated, shear force-controlling microfluidic system,“ *Chemical Engineering Journal Advances*, 10.1016/j.ceja.2024.100681, 2024. (SCI; Impact factor=5.5) 31/170=18% (Chemical Engineering). (Corresponding author).
15. Chih-Hung Wang, Yang-Sheng Shao, Keng-Fu Hsu, and Gwo-Bin Lee*, „Dual-methylated BRCA1/BRCA2 detection on an aptamer-based integrated microfluidic system,“ *Chemical Engineering Journal*, 10.1016/j.cej.2024.153478, 2024. (SCI; Impact factor=15.1) 11/346 =3.2% (Chemical Engineering). **(Corresponding author)**.
16. Rishabh Gandotra, Hung-Bin Wu, Feng-Chih Kuo, Mel S. Lee* and Gwo-Bin Lee*, „Diagnosis of Periprosthetic Joint Infections: Integrated Microfluidic Platform for Alpha-Defensins-specific Aptamer Selection and Its Analytical Applications,“ *ACS sensors*, 10.1021/acssensors.3c02034, 2024 (SCI; Impact factor=9.618) 1/87=1.1% (Chemical Engineering - Fluid Flow and Transfer Processes). **(Co-corresponding author)**.
17. Chien-Hsin Chiu, Chih-Hung Wang, Ying-Jun Lin, Chi-Chung Tang, Wei-Jei Peng, Wen-Yen Huang, Yan-Shen Shan, Huey-Pin Tsai**, and Gwo-Bin Lee*, „Simultaneous detection of SARS-CoV-2 and influenza A/B viruses on an electromagnetically-driven, integrated microfluidic system,“ *Sensors and Actuators: B*, 10.1016/j.snb.2024.135647, 2024 (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). **(Co-corresponding author)**.
18. Wei-Jen Soong, Chih-Hung Wang, Chihchen Chen, and Gwo-Bin Lee*, „Nanoscale Sorting of Extracellular Vesicles via Optically-Induced Dielectrophoresis on an Integrated Microfluidic System,“ *Lab on a chip*, 10.1039/D3LC01007D, vol. 24, pp. 1965-1976, 2024 (SCI; Impact factor=7.517) 5/77=6.5% (BIOCHEMICAL RESEARCH METHODS) **(Corresponding author)**.
19. Pei-Rong Li, Sasi Kiran Boilla, Chih-Hung Wang, Pei-Chien Lin, Chien-Nan Kuo, Tsung-Heng Tsai**, and Gwo-Bin Lee*, „A self-driven, microfluidic, integrated-

- circuit biosensing chip for detecting four cardiovascular disease biomarkers,” *Biosensors and Bioelectronics*, 10.1016/j.bios.2023.115931, 2024 (SCI; Impact factor = 12.6) 2/86=2.3% (CHEMISTRY, ANALYTICAL) (**Co-corresponding author**).
20. Jui-Lin Chang, Chien-Jui Huang, Yi-Cheng Tsai, Nai-Jung Chiang, Yu-Shan Huang, Shang-Cheng Hung***, Yan-Shen Shan**, and **Gwo-Bin Lee***, „An Integrated Microfluidic System for Automatic Detection of Cholangiocarcinoma Cells from Bile,” *Lab on a chip*, 10.1039/D3LC00862B, 2024 (SCI; Impact factor=7.517) 5/77=6.5% (BIOCHEMICAL RESEARCH METHODS) (**Co-corresponding author**).
 21. Rishabh Gandotra, Feng-Chih Kuo, Mel S. Lee* and **Gwo-Bin Lee***, A paper-based aptamer-sandwich assay for detection of HNP 1 as a biomarker for periprosthetic joint infections on an integrated microfluidic platform,” *Analytica Chimica Acta*, Vol. 1281, 341879, 10.1016/j.aca.2023.341879 , 2023 (SCI, Impact factor=6.911) 8/86=9.3% (Chemistry, Analytical) (**Co-corresponding author**).
 22. Hung-Bin Wu, Chih-Hung Wang, Yan-Shen Shan, Ying-Jun Lin, Huey-Pin Tsai** and **Gwo-Bin Lee***, „Highly-specific aptamer targeting SARS-CoV-2 S1 protein screened on an automatic integrated microfluidic system for COVID-19 diagnosis,” *Analytica Chimica Acta*, 10.1016/j.aca.2023.341531, 2023 (SCI, Impact factor=6.911) 8/86=9.3% (Chemistry, Analytical) (**Co-corresponding author**).
 23. To-Wen Chen, Rishabh Gandotra, Hwan-You Chang, Mel S. Lee, Feng-Chih Kuo**and **Gwo-Bin Lee***, „Automatic Detection of Two Synovial Fluid Periprosthetic Joint Infection Biomarkers on an Integrated Microfluidic System,” *Analytical Chemistry*, 10.1021/acs.analchem.3c00767, 2023 (SCI;Impact factor=7.4) 7/86=8.1% (CHEMISTRY, ANALYTICAL) (**Co-corresponding author**).
 24. Tsung-Hsien Wu, Yi-Cheng Tsai, Feng-Chih Kuo, Mel S. Lee, Chih-Chien Hu** and **Gwo-Bin Lee***, „A microfluidic platform for detection and quantification of two biomarkers for rheumatoid arthritis,” *Sensors and Actuators B: Chemical*, 10.1016/j.snb.2023.133587, 2023 (SCI; Impact factor=8.4) 1/63=1.5% (INSTRUMENTS & INSTRUMENTATION). (**Co-corresponding author**).
 25. Rishabh Gandotra, To-Wen Chen, Feng-Chih Kuo, Mel S. Lee*, and **Gwo-Bin Lee***, „An aptamer-based sandwich assay for detection of alpha-defensin human neutrophil protein 1 on a microfluidic platform,” *Biosensors and Bioelectronics*, 10.1016/j.bios.2023.115120, 2023. (SCI; Impact factor = 12.6) 2/86=2.3% (CHEMISTRY, ANALYTICAL) (**Co-corresponding author**).

B-1. Conference Papers

1. Sasi Kiran Boilla, Ihua Lee, Tsung-Heng Tsai** and **Gwo-Bin Lee***, “MONOLITHIC INTEGRATION OF TIME-DOMAIN CMOS CIRCUITS WITH CAPILLARY MICROFLUIDICS FOR CARDIOVASCULAR BIOMARKER DETECTION,” IEEE MEMS 2026, Salzburg, AUSTRIA.
2. Ping-Chieh Huang, Chih-Hung Wang, Pratik-Ganesh Kinniwadi, Ko-Hua Lin, Yan-Shen Shan, Huey-Pin Tsai** and **Gwo-Bin Lee***, “An Electromagnetically-Driven Portable Microfluidic System for Molecular Diagnosis of Respiratory Syncytial Virus,” MicroTAS 2025, Australia, 2025.
3. Yu-Pin Chou, Yi-Chen Tsai and **Gwo-Bin Lee***, “Aptamer Screening on an Integrated Microfluidic System Using Shear-Force-Controlled SELEX Targeting p-Tau 217 for Alzheimer’s Disease,” MicroTAS 2025, Australia, 2025.
4. Pritesh Pandharinath Jagtap, Yi-Cheng Tsai and **Gwo-Bin Lee***, “Flexible 3D Printed Microfluidic Devices for Drug-Dose Combination by Using Complex System Response Technology,” MicroTAS 2025, Australia, 2025.
5. Ting-Yun Kan, Yi-Cheng Tsai and **Gwo-Bin Lee***, “A New Dual-Aptamer Sandwich Assay for Detection of Folate Receptor Alpha on An Integrated Microfluidic System,” MicroTAS 2025. Australia, 2025.
6. Chih-Hung Wang, To-Wen Chen and **Gwo-Bin Lee***, “Optimizing Dual Aptamer Binding Assays for C-Reactive Protein (CRP) by Biostatistical Analysis, 3D Molecular Simulation and Fast Selection on an Integrated Microfluidic Chip,” Transducers 2025, USA, 2025.
7. Yi-Cheng Tsai, Pritesh Jagtap Patil, Chang-Ni Lin, Wen-Jun Chen, Keng-Fu Hsu, Yan-Shen Shan, Da-Jeng Yao, Chih-Ming Ho and **Gwo-Bin Lee***, Optimization of Drug-Dosage Combination of Cancer Therapy for Ovarian Cancer and Cholangiocarcinoma by using Complex System Response Technology,” 2025 IEEE NSENS, Malaysia, 2025.
8. Swati T. Gurme, Yu-Ting Su, Yi-Da Chung, Lily Hui-Ching Wang and **Gwo-Bin lee***, “AN INTEGRATED MICROFLUIDIC SYSTEM FOR mRNA EXTRACTION FROM IN VITRO TRANSCRIBED REACTION MIXTURE BY USING PROBE-COATED MAGNETIC BEADS,” IEEE MEMS 2025.
9. Hao-Yen Wang, Shih-Yu Shen, Lily Hui-Ching Wang* and **Gwo-Bin Lee***, “AN INTEGRATED MICROFLUIDIC SYSTEM FOR AUTOMATIC mRNA DISPLAY USING TRANSCRIPTION-TRANSLATION COUPLED WITH ASSOCIATION OF PUROMYCIN LINKER FOR PEPTIDE SCREENING,” MicroTAS 2024, Montreal, Canada.
10. Yu-Ting Su, Yi-Cheng Tsai, Chien-Jui Huang, Nai-Jung Chiang, Anandaraju Bandaru, Shang-Cheng Hung*, Yan-Shen Shan*, **Gwo-Bin Lee***, “Optimization

- of a Microfluidic System for Automated Detection of Cholangiocarcinoma Cells in Bile for Prognosis and Early Diagnosis,” MicroTAS 2024, Montreal, Canada.
11. Cheng-Hsuan Chung, Chih-Hung Wang, Wei-Jen Soong, and **Gwo-Bin Lee***, “SEPARATION OF EXTRACELLULAR VESICLES WITH DIFFERENT SIZES IN CULTURE MEDIUM USING OPTICALLY-INDUCED DIELECTROPHORESIS ON A MULTI-CHANNEL MICROFLUIDIC CHIP,” MicroTAS 2024, Montreal, Canada.
 12. Ko-Hua Lin, Chih-Hung Wang, Ying-Jun Lin, Wen-Yen Huang, Yan-Shen Shan, Huey-Pin Tsai* and **Gwo-Bin Lee***, “An Electromagnetically-Driven Portable Microfluidic System for Multiplex qRT-PCR Diagnosis of SARS-CoV-2 and Influenza A/B Viruses,” MicroTAS 2024, Montreal, Canada.
 13. Rishabh Gandotra, Hung-Bin Wu, Feng-Chih Kuo, Mel S Lee*, **Gwo-Bin Lee***, “A Novel One-aptamer-one-antibody Assay for Detection of Alpha Defensins HNP 1-3 in Synovial Fluid for Diagnosis of Periprosthetic Joint Infections,” 10.1109/NEMS60219.2024.10639914, IEEE NEMS 2024, Kyoto, Japan.
 14. Sasi Kiran Boilla, Pei-Rong Li, Pei-Chien Lin, Tsung-Heng Tsai*, **Gwo-Bin Lee***, “TIME-DOMAIN INTEGRATED-CIRCUITS-BASED BIOSENSORS ON AN INTEGRATED MICROFLUIDIC SYSTEM FOR CARDIOVASCULAR BIOMARKERS,” 10.1109/NEMS60219.2024.10639869, IEEE NEMS 2024, Kyoto, Japan.
 15. To-Wen Chen, Chih-Hung Wang, **Gwo-Bin Lee***, “A DUAL-APTAMER SANDWICH ASSAY FOR DETECTION OF C-REACTIVE PROTEIN ON AN INTEGRATED MICROFLUIDIC SYSTEM,” IEEE NEMS 2024, Kyoto, Japan.
 16. Sasi kiran Boilla, Yi-Cheng Tsai, and **Gwo-Bin lee***, “AN INTEGRATED MICROFLUIDIC DEVICE FOR SAMPLE PRETREATMENT AND CAPTURING OF CIRCULATING TUMOR CELLS BY USING MAGNETIC PEARL-BEAD-LIKE CHAIN-STRUCTURES,” IEEE MEMS 2024, Austin, Texas, USA.
 17. Yang-Sheng Shao, Yi-Cheng Tsai and **Gwo-Bin Lee***, “A MICROFLUIDIC SYSTEM INTEGRATED WITH A SHEAR FORCE CONTROL DEVICE TO OPTIMIZE SELECTION OF APTAMERS TARGETING FOLATE RECEPTOR ALPHA,” MicroTAS 2023, Poland.
 18. Kuan-Yu Chen, Yi-Cheng Tsai, Feng-Chih Kuo, Mel S. Lee, Chih-Chien Hu and **Gwo-Bin Lee***, “DUAL-TARGET MICROFLUIDIC SYSTEM INTEGRATED WITH AN OPTICAL DETECTION MODULE FOR AUTOMATIC DIAGNOSIS OF RHEUMATOID ARTHRITIS,” MicroTAS 2023, Poland.
 19. Sung-Chi Chang, Chih-Hung Wang, and **Gwo-Bin Lee***, “AN APTAMER-BASED MICRONEEDLE PATCH TO CONTINUOUSLY MONITOR

- BIOMARKERS OF CARDIOVASCULAR DISEASES,” MicroTAS 2023, Poland.
20. Yi-Da Chung and **Gwo-Bin Lee***, “A MICROFLUIDIC DEVICE COMBINING COMPETITIVE NON-SELEX METHOD WITH WASHING STRINGENCY CONTROL FOR SELECTING FOLATE RECEPTOR ALPHA APTAMERS,” MicroTAS 2023, Poland.
 21. Sasi kiran Boilla, Yi-Cheng Tsai, and **Gwo-Bin lee***, “NOVEL MICROFLUDIC DEVICE FOR EFFECTIVE ISOLATION OF CIRCULATING TUMOR CELLS BY USING MAGNETIC PEARL-LIKE BEAD-CHAIN STRUCTURES,” Transducers 2023, Kyoto, Japan.
 22. Yi-Cheng Tsai, Yang-Sheng Shao, Hung-Bin Wu and **Gwo-Bin Lee***, “OPTIMIZIMING SCREENING PROCESS OF APTAMERS ON AN MICROFLUIDIC SYSTEM BY SHEARE FORCE CONTROL FOR APTAMERS SPECIFIC TO FOLATE RECEPTOR ALPHA,” Transducers 2023, Kyoto, Japan.
 23. Chih-Hung Wang, Keng-Fu Hsu and Gwo-Bin Lee*, “DUAL METHYLATED BRCA1/BRCA2 DETECTION ON AN APTAMER-BASED INTEGRATED MICROFLUIDIC SYSTEM,” Transducers 2023, Kyoto, Japan.
 24. Wei-Jen Soong, Chih-Hung Wang, Yi-Sin Chen, Chih-Chen Chen and **Gwo-Bin Lee*** “SORTING OF EXTRACELLULAR VESICLES BY USING OPTICALLY-INDUCED DIELECTROPHORESIS ON AN INTEGRATED MICROFLUIDIC CHIP,” IEEE MEMS 2023 Munich, Germany.
 25. Rishabh Gandotra, Feng-Chih Kuo, Mel S. Lee and **Gwo-Bin Lee*** “A paper-based dual aptamer assay on an integrated microfluidic system for detection of HNP 1 as a biomarker for periprosthetic joint infections,” IEEE MEMS 2023, Munich, Germany.

C. Patents

中華民國專利

已獲證

1. “專一性地結合甲基化 DNA 片段的 DNA 適體及其篩選方法與應用” 發明人：李國賓、王志宏，中華民國發明專利第 I84115，專利權起訖日：2024/5/1~2042/12/28

2. 檢測SARS-COV-2的微流體裝置及其使用方法 發明人:李國賓, 王志宏, 周佑儒, 蔡宇軒, (granted)
3. “多病毒檢測裝置、系統及其使用方法” 發明人: 李國賓 邱建欣 王志宏, 證書號: I852718, 專利權起訖日: 2024/8/11~2043/8/7

美國專利

已獲證

1. “METHODS FOR DETECTING AND TREATING CHOLANGIOCARCINOMA”, 美國發明專利申請號 17238431, Inventors: **Gwo-Bin Lee**, Shang-Cheng Hung, US patent No. 11506664B1, Date of patent: 2023
2. “METHODS FOR DETECTING CHOLANGIOCARCINOMA CELLS”, Inventors: **Gwo-Bin Lee**, Shang-Cheng Hung, Gwo-Bin Lee, P Gopinathan, US Patent 11,506,664, 2022
3. “Method for detecting cholangiocarcinoma cells”, Inventors: Gwo Bin Lee, Shang-Cheng Hung, Wei-Chun Tsai, Patent number: 11549946, Date of Patent: January 10, 2023
4. “Devices and methods for detecting cancerous cells”, Inventors: Shang-Cheng Hung, KO Yen-Chun, Cheng-Fang Tsai, **Gwo-Bin Lee**, Wei-Chun Tsai, patent number: 12053777, Date of patent: 2024/8/6



Hung-Pang Lee, Ph.D.

Assistant Professor
Institute of Biomedical Engineering
National Tsing Hua University
Hsinchu, Taiwan (ROC)
Email: hplee@mx.nthu.edu.tw

Dr. Hung Pang Lee (Patrick) is an Assistant Professor at the Institute of Biomedical Engineering, National Tsing Hua University. His research focuses on smart biomaterials, mechanobiology, and advanced biofabrication, with over nine years of experience leading innovation in polymer chemistry, additive manufacturing, stem cell engineering, and 3D bioprinting. He has published more than 20 peer-reviewed papers, accumulated over 800 citations, and holds an h-index of 13.

Dr. Lee completed his Ph.D. at Texas A&M University, where he developed NIR-triggered in situ gelation systems, bioelectronic hydrogels, and dynamic covalent injectable hydrogels for drug and stem cell delivery. He later continued postdoctoral training at Stanford Bioengineering, advancing hydrogel design to probe mechanobiology in 3D and pioneering anisotropic microgel printing for vascularized bone fabrication.

Building on interdisciplinary expertise and international training, Dr. Lee leads a research lab at NTHU integrating smart biomaterials, immuno-mechanobiology, and 3D bioprinting to create transformative solutions for tissue repair, aging, and disease modeling.

Publication List

February 2026

JOURNAL PUBLICATION

1. Lee HP, Tai M, Jones S, Tong X, Kim S, Jansman M.T. M, Tam T, Du J, Skylar-Scott M. A, Yang F. "Ribbon-shaped microgels as bioinks for 3D bioprinting of anisotropic tissue structures." **Bioactive Materials** 59 (2026): 595-606. (IF 20.3)
2. Ayushman M, Mikos G, Tong X, Sinha S, Lopez-Fuentes E, Jones S, Cai PC, Lee HP, Morrison A, Spakowitz A, Heilshorn SC, Sweet-Cordero A, Yang F. Minutes-Scale Cell Tumbling Enhances Stem Cell Differentiation in 3D Hydrogels via Nuclear Mechanotransduction. **Nature Materials** 2024 (IF: 37.2)
3. Tong X, Ayushman M, Lee HP, Yang F. Sliding Hydrogels with Tunable Matrix Compliance Accelerate Mesenchymal Stem Cell Chondrogenesis in 3D. **Biomaterials** 2025: 123112. (IF:12.9)
4. Roy S, Deo KA, Lee HP, Soukar J, Namkoong M, Tian L, Jaiswal A, Gaharwar AK. 3D Printed Electronic Skin for Strain, Pressure, and Temperature Sensing. **Advanced Functional Materials** 2023 (IF: 19.0)
5. Villicana C, Su N, Yang A, Tong X, Lee HP, Ayushman M, Lee J, Tai M, Kim T, Yang F. Incorporating Bone-Derived ECM into Macroporous Microribbon Scaffolds Accelerates Bone Regeneration. **Advanced Healthcare Materials**.:2402138.
6. Ayushman M, Lee HP, Agarwal P, Mikos G, Tong X, Jones S, Sinha S, Goodman S, Bhutani N, Yang F. Sliding Hydrogels Reveal the Modulation of Mechanosensing Attenuates the Inflammatory Phenotype of Osteoarthritic Chondrocytes in 3D. **Journal of Biomedical Materials Research Part A**. 2025 Jan;113(1):e37861.
7. Lee HP, Cai KX, Wang TC, Davis Jr R, Deo K, Singh KA, Lele TP, Gaharwar AK. Dynamically crosslinked thermoresponsive granular hydrogels. **Journal of Biomedical Materials Research Part A** 2023; 111(10): 1577-1587.
8. Lee HP, Davis Jr R, Wang T-C, Deo KA, Cai KX, Alge DL, Lele TP, Gaharwar AK. Dynamically Cross-Linked Granular Hydrogels for 3D Printing and Therapeutic Delivery. **ACS Applied Bio Materials** 2023;6(9):3683-3695.

INVITED TALK

1. 2025/12/15 "3D Bioprinting Vascularized Bone Using Anisotropic Microgels". 科技論壇, NAIR, Taiwan



吳志成 Chih-Cheng Wu, M.D.

National Taiwan University Hospital, Hsinchu Br.
Vice superintendent
Institute of Biomedical Engineering, adjunct professor
National Tsing Hua University
Hsinchu, Taiwan(ROC)
Email: chihchengwumd@gmail.com

Chih-Cheng Wu is an adjunct Professor, Institute of Biomedical Engineering, Tsing Hua University and College of Medicine, National Taiwan University. He received his MD degree from College of medicine, National Yang Ming University in June, 1994. His research interests are vascular biology, endovascular interventional technology and cardiovascular diseases in hemodialysis patients. Doctor Wu has received numerous awards such as best science from European Society of Cardiology, Society of interventional Radiology, Society of Atherosclerosis and vascular disease, and Taiwan Society of Cardiology. He has been on the Editorial Boards of Journal of Taiwan Society of Interventional Cardiology and executive editor of Acta Cardiologica Sinica. He is now also the director of Center of Quality Management and deputy director of Medical Education Department of National Taiwan University, Hsinchu branch. Doctor Wu has published more than 80 scientific papers.

Publication List

January 2026

期刊論文

1. Chien-Ming Luo, Cheng-Wei Lien, Mu-Yang Hsieh, Li-Pei Dai, Chih-Cheng Wu (2025, Nov). Disability predicts maturation failure of hemodialysis arteriovenous fistulas. *Vascular Medicine*, <https://doi.org/10.1177/1358863X251386408>. 本人為通訊作者.
2. Chih-Cheng Wu, Chieh-kai Chan, Chih-chen Liao, Ru-Yin Shu, Mu-Yang Hsieh, Jiun Wang Jr, Shao-Yuan Chuang, Hao-Min Cheng (2025, Nov). Carotid pulsatile energy fraction surpasses traditional hemodynamic markers in explaining cognitive impairment among hemodialysis patients. *Hypertension Research*, <https://doi.org/10.1038/s41440-025-02438-y>. 本人為第一作者.
3. Nien-Hsuan Lin, Ru-Yin Hsu, Mu-Yang Hsieh, Chieh-Kai Chan, Shao-Yuan Chuang, Chih-Chen Liao, Hao-Ming Cheng, Chih-Cheng Wu (2025, Nov). Comparative associations of home and dialysis-unit blood pressure with left ventricular mass and arterial stiffness in maintenance hemodialysis patients. *Hypertension Research*, <https://doi.org/10.1038/s41440-025-02450-2>. 本人為通訊作者.
4. Chih-Sheng Chu , Cheng-Ting Tsai , Chun-Yao Huang , Cheng-Hung Li , Han-Lin Tsai , Yen-Bin Liu , Ju-Chi Liu , Huai-Ren Chang , Wei-Shiang Lin , Tze-Fan Chao , Tien-Ping Tsao , Jih-Yuan Shih , Jun-Ted Chong , Shih-Chung Huang , Chih-Cheng Wu , Cheng-Sheng Lin , Chun-Che Shih , Cheng-I Cheng , Ting-Hsing Chao , Cheng-Hung Chiang ... Tsung-Hsien Lin (2025, Oct). The RELationship of Advanced Education and ADherence (ReAHEAD) on antithrombotic in younger patients with non-valvular atrial fibrillation in Taiwan. *Journal of the Formosan Medical Association*, <https://doi.org/10.1016/j.jfma.2025.10.002>.
5. Cheng-Wei Lien, Hao-Yun Lo, Wen-Jeng Lee, Li-Pin Chen, Chih-Cheng Wu, Hsien-Li Kao, Mu-Yang Hsieh, Ching-Ting Tan (2025, Sep). Utilizing Mixed Reality Technology to Facilitate Coronary Chronic Total Occlusion Antegrade Wiring: A Pilot Study. *JACC: CASE REPORTS*, 025:104997.
6. Donna Shu-Han Lin, Hao-Yun Lo, Chung-Wei Yang, Chih-Cheng Wu (2025, Aug). Safety and Short-Term Effects of Empagliflozin in Patients with Heart Failure and End-Stage Renal Disease. *American Journal of Cardiovascular Drugs*, doi: 10.1007/s40256-025-00760. 本人為通訊作者.
7. Liang-Yu Lin, Yen-Hung Lin, Shih-Chieh Jeff Chueh, Chih-Fan Yeh, Chih-Cheng Wu, Hao-Min Cheng, Shang-Jyh Hwang, Feng-Hsuan Liu, Jun Yang, Vin-

- Cent Wu (2025, Jul). Universal Screening for Primary Aldosteronism in Hypertensive Patients: A 2025 Taipei Positional Paper. *The Journal of Clinical Hypertension*, 27:e70102.
8. Ru-Yin Hsu, Hao-Yun Lo, Chien-Hao Chen, Yee-Jen Wu, Ding-Cheng Chan, Chih-Cheng Wu, Tzung-Dau Wang, Hsien-Li Kao, Wen-Jung Sun, Yen-Hung Lin, Hung-Ju Lin (2025, Jul). Blood pressure targets, medication considerations and special concerns in elderly hypertension: Focus on atherosclerotic cardiovascular diseases, atrial fibrillation, heart failure, and aortic stenosis. *Journal of the Formosan Medical Association*, (124) S49-S54.
9. Cheng-Wei Lien, Hao-Yun Lo, Wen-Jeng Lee, Li-Pin Chen, Chih-Cheng Wu, Hsien-Li Kao, Mu-Yang Hsieh, Ching-Ting Tan, (2025, Jun). Utilizing Mixed Reality Technology to Facilitate Coronary Chronic Total Occlusion Antegrade Wiring A Pilot Study. *JACC: CASE REPORTS*, VOL . 30, NO. 27 , .
10. Chien-Ming Luo, Mu-Yang Hsieh, Chih-Cheng Wu (2025, May). Effect of Disability on Arteriovenous Fistula Maturation in Patients Undergoing Hemodialysis. *Eur J Vasc Endovasc Surg*, 70, 268e269. 本人為通訊作者.
11. Chih-Cheng Wu (2025, May). Functional Status and Vascular Access: Clarifying Retrospective Limitations and Supporting Independent Associations. *Eur J Vasc Endovasc Surg*, <https://doi.org/10.1016/j.ejvs.2025.05.055>. 本人為第一作者、通訊作者.
12. Chiu-Hui Chen, Tzu-Shan Yeh, Li-Pei Dai, Chien-Ming Luo, Chung-Wei Yang, and Chih-Cheng Wu (2025, Feb). Frailty Associated with Cardiovascular Mortality in Hemodialysis Patients. *Acta Cardiol Sinica*, 41:219-229. 本人為通訊作者.
13. Tsung-Yu Ko, Chih-Cheng Wu, Mu-Yang Hsieh, Chung-Wei Yang, Chi-Hung Cheng, Chun-Kai Chen and Hsien-Li Kao (2025, Feb). A randomized controlled trial evaluated the efficacy and safety of apixaban for prevention of recurrent thrombosis after thrombectomy of hemodialysis vascular access2025 . *Kidney International* , 107, 348–358. 本人為通訊作者.
14. Chien-Boon Jong, Tsui-Shan Lu, Min-Tsun Liao, Jia-Lang Xu, Chun-Kai Chen, Jui-Cheng Kuo, Chih-Cheng Wu (2024, Dec). Comparison of Nitroglycerin-Induced Pressure Ratio Drop and Resting Full-Cycle Ratio in a Pressure Wire Study. *J. Clin. Med*, 13(22), 6716.
15. Mu-Yang Hsieh, Chien-Ming Luo, Chi-Hong Cheng, Li-Pei Dai, Chiu-Hui Chen, Shao-Yuan Chuang, Chung-Wei Yang, Chih-Cheng Wu (2024, Dec). Association of frailty and chronic limb-threatening ischemia in patients on maintenance hemodialysis: A prospective cohort study. *Aging*, 16(22):13676-13692.. 本人為通訊作者.

16. Chyong-Mei Chen, Chih-Ching Lin, Chih-Cheng Wu and Jia-Ren Tsai (2024, Nov). Mixture mean residual life model for competing risks data with mismeasured covariates. *JOURNAL OF APPLIED STATISTICS*.
17. Ting-Hsing Chao, Tsung-Hsien Lin, Cheng-I Cheng, Yen-Wen Wu, Kwo-Chang Ueng, Yih-Jer Wu, Wei-Wen Lin, Hsing-Ban Leu, Hao-Min Cheng, Chin-Chou Huang, Chih-Cheng Wu, Chao-Feng Lin, Wei-Ting Chang, Wen-Han Pan, Pey-Rong Chen, Ke-Hsin Ting, Chun-Hung Su, Chih-Sheng Chu, Kuo-Liong Chien, Hsueh-Wei Yen, Yu-Chen Wang, Ta-Chen Su, Pang-Yen Liu, Hsien-Yuan Chang, Po-Wei Chen, Jyh-Ming Jimmy Juang, Ya-Wen Lu, Po-Lin Lin, Chao-Ping Wang, Yu-Shien Ko, Chern-En Chiang, Charles Jia-Yin Hou, Tzung-Dau Wang, Yen-Hung Lin, Po-Hsun Huang and Wen-Jone Chen (2024, Nov). 2024 Guidelines of the Taiwan Society of Cardiology on the Primary Prevention of Atherosclerotic Cardiovascular Disease --- Part II. *Acta Cardiol Sin*, 40 (6) 669-715.
18. Heng-Yu Pan, Po-Lung Yang, Chun-Hsien Lin, Chun-Yi Chi, Chia-Wen Lu, Tai-Shuan Lai, Chih-Fan Yeh, Michael Yu-Chih Chen, Tzung-Dau Wang, Hsien-Li Kao, Yen-Hung Lin, Mu-Cyun Wang, Chih-Cheng Wu (2024, Sep). Blood pressure targets, medication consideration and special concerns in elderly hypertension part I: General principles and special considerations. *J Formos Med Assoc*, S0929-6646(24)00443-1. 本人為通訊作者.
19. Ting-Hsing Chao, Tsung-Hsien Lin, Cheng-I Cheng, Yen-Wen Wu, Kwo-Chang Ueng, Yih-Jer Wu, Wei-Wen Lin, Hsing-Ban Leu, Hao-Min Cheng, Chin-Chou Huang, Chih-Cheng Wu, Chao-Feng Lin, Wei-Ting Chang, Wen-Han Pan, Pey-Rong Chen, Ke-Hsin Ting, Chun-Hung Su, Chih-Sheng Chu, Kuo-Liong Chien, Hsueh-Wei Yen, Yu-Chen Wang, Ta-Chen Su, Pang-Yen Liu, Hsien-Yuan Chang, Po-Wei Chen, Jyh-Ming Jimmy Juang, Ya-Wen Lu, Po-Lin Lin, Chao-Ping Wang, Yu-Shien Ko, Chern-En Chiang, Charles Jia-Yin Hou, Tzung-Dau Wang, Yen-Hung Lin, Po-Hsun Huang and Wen-Jone Chen (2024, Sep). 2024 Guidelines of the Taiwan Society of Cardiology on the Primary Prevention of Atherosclerotic Cardiovascular Disease --- Part I. *Acta Cardiol Sin*, 40:479-543.
20. Ju-Yin Hsu, Chih-Cheng Wu (2024, Jul). Author's Reply to the Letter to the Editor "Acute Coronary Syndrome in Hemodialysis Patients: A Look from a Broad Perspective". *Acta Cardiol Sin*, 40(4):470-471. 本人為通訊作者.
21. Ju-Yin Hsu, Chih-Kuo Lee, Shou-Yung Chaung, Chi-Hung Cheng, Li-Pei Dai, Mu-Yang Hsieh, Chung-Wei Yang, Chih-Cheng Wu (2023, Oct). Incidence and Predictors of Acute Coronary Syndrome in Patients on Maintenance Hemodialysis: A Prospective Cohort Study. *Acta Cardiologica Sinica*, 40:191-199. 本人為通訊作者.

22. Mu-Yang Hsieh, Pei-Shan Lin, Min-Tsun Liao, Lin Lin, Tsung-Yan Chen, Jong-Chien Boon, Ten-Fang Yang, Chih-Cheng Wu (2023, May). A Randomised Trial Comparing Drug-Coated Balloons and Conventional Balloons for the Treatment of Stent-Graft Stenosis in Dialysis Vascular Access. *Eur J Vasc Endovasc Surg* , 18;S1078-5884(23). 本人為通訊作者.
23. Arnab Pal, Kuldeep Kaswan, Snigdha Roy Barman, Yu-Zih Lin, Jun-Hsuan Chung, Manish Kumar Sharma, Kuei-Lin Liu, Bo-Huan Chen, Chih-Cheng Wu, Sangmin Lee, Dongwhi Choi, Zong-Hong Lin (2023, Jan). Microfluidic nanodevices for drug sensing and screening applications. *Biosensors and Bioelectronics*, 201(1): 114783.
24. Jiun-Yang Chiang, Lin Lin, Chih-Cheng Wu, Juey-Jen Hwang, Wei-Shiung Yang, Yen-Wen Wu (2022, Dec). Serum myostatin level is associated with myocardial scar burden by SPECT myocardial perfusion imaging. *Clinica Chimica Acta*, 537: 9-15.
25. Mu-Yang Hsieh, Shao-Yuan Chuang, Chih-Kuo Lee, Chien-Ming Luo, Chi-Hung Cheng, Min-Tsun Liao, Po-Lin Lin, Ten-Fang Yang, Chih-Cheng Wu (2022, Nov). Risks and outcomes of critical limb ischaemia in haemodialysis patients: a prospective cohort study . *Clin Kidney J*, <https://doi.org/10.1093/ckj/sfac263>. 本人為通訊作者.
26. Chien-Boon Jong, Min-Tsun Liao, Tsui-Shan Lu, Shih-Wei Meng, Chun-Kai Chen, Ya-Chin Tsai, Jui-Cheng Kuo, and Chih-Cheng Wu (2022, Sep). Efficacy and Safety of High-Dose Intracoronary Adenosine Injection in Fractional Flow Reserve Assessment. *Acta Cardiol Sin*, 38(5): 553–563.
27. Chien-Ming Luo, Mu-Yang Hsieh, Chi-Hung Cheng, Chiu-Hui Chen , Min-Tsun Liao, Shao-Yuan Chuang, Chih-Cheng Wu (2022, Sep). Association of Frailty With Thrombosis of Hemodialysis Vascular Access: A Prospective Taiwanese Cohort Study. *Am J Kidney Dis*, 80 (3) 353-363. 本人為通訊作者.
28. Mu-Yang Hsieh, Chi-Hung Cheng, Chiu-Hui Chen, Min-Tsun Liao, Chih-Ching Lin, Ten-Fang Yang, Shao-Yuan Chuang and Chih-Cheng Wu (2022, Aug). The association of long-term blood pressure variability with hemodialysis access thrombosis. *Front Cardiovasc Med*, 9:881454.. 本人為通訊作者.
29. Heng-Cheng Tsai; Shuo-Ming Ou; Chih-Cheng Wu; Chin-Chou Huang; Jyh-Tong Hsieh; Po-Yu Tseng; Chiu-Yang Lee; Chih-Yu Yang; Der-Cherng Tarn (2022, Feb). Pentraxin 3 Predicts Arteriovenous Fistula Functional Patency Loss and Mortality in Chronic Hemodialysis Patients. *Am J Nephrol*, 53 (2-3): 148–156.
30. Min-Tsun Liao, Chien-Ming Luo, Ming-Chien Hsieh, Mu-Yang Hsieh, Chih-Ching Lin, Wei-Chu Chie, Ten-Fang Yang, Chih-Cheng Wu (2021, Nov). Stent

- Grafts Improved Patency of Ruptured Hemodialysis Vascular Accesses. *Sci Rep*, 12:51. 本人為通訊作者.
31. Tzu-Shan Yeh; Shih-Wei Meng; Lin Lin; Chih-Cheng Wu (2021, Sep). Blood flow of dialysis arteriovenous graft compromised by a brachial artery- brachial vein fistula. *Acta Cardiol Sin*, 38(2): 214–216. 本人為通訊作者.
32. Chiu-Hui Chen, Yu-Ling Hsieh, Shao-Yuan Chuang, Fan-Yin Su, Kuan-Ting Wang, Chien-Ming Luo, Shih-Wei Meng, Chih-Cheng Wu (2021, Jul). The impact of frailty on the outcomes of hemodialysis vascular access . *Acta Cardiol Sin*, 38(1): 29–38. 本人為通訊作者.
33. Paul C.-P. Chao, Chih-Cheng Wu, Duc Huy Nguyen, Ba-Sy Nguyen ,Pin-Chia Huang , Van-Hung Le (2021, Jun). The Machine Learnings Leading the Cuffless PPG Blood Pressure Sensors Into the Next Stage. *IEEE Sensors J*, 2021, 21 (11): 12498 - 12510.
34. Sanjay Misra, Sreenivasulu Kilari, Binxia Yang, Amit Sharma , Chih-Cheng Wu, Roberto I. Vazquez-Padron, John Broadwater (2021, Apr). Anti Human CX3CR1 VHH Molecule Attenuates Venous Neointimal Hyperplasia of Arteriovenous Fistula in Mouse Model. *J Am Soc Nephrol*, 32(7):1630-1648.
35. Hsin-Lei Huang, Chin-Sung Kuo, Ting-Yung Chang, Ruey-Hsing Chou, I-Chun Chen, Fu-Chen Yang, Nien-Jung Chen, Shing-Jong Lin, Chih-Cheng Wu, Po-Hsun Huang (2021, Mar). An oral absorbent, AST-120, restores vascular growth and blood flow in ischemic muscles in diabetic mice via modulation of macrophage transition. *J Mol Cell Cardiol*, 155 (2021) 99–110. 本人為通訊作者.
36. Min-Tsun Liao, Cho-Kai Wu, Jyh-Ming Jimmy Juang, Ting-Tse Lin, Chih-Cheng Wu, Lian-Yu Lin (2021, Mar). Atrial fibrillation and the risk of sudden cardiac arrest in patients with hypertrophic cardiomyopathy - A nationwide cohort study. *EclinicalMedicine* . , 17;34:100802. 本人為通訊作者.
37. Yu-Ping Pao, Ching-Ching Yu, Yu-Zih Lin, Subhdeep Chatterjee, Subhajit Saha, Naveen Tiwari, Yu-Ting Huang, Chih-Cheng Wu,, Dukhyun Choi, Zong-Hong Lin (2021, Mar). Carbohydrate-protein interactions studied by solid-liquid contact electrification and its use for label-free bacterial detection. *Nano Energy*, 85 (2021) 106008. 本人為通訊作者.
38. Y.-J. Lin†, I. Khan†, S. Saha, C.-C. Wu, S. R. Barman, F.-C. Kao, Z.-H. Lin* (2021, Jan). Thermocatalytic Hydrogen Peroxide Generation and Environmental Disinfection by Bi₂Te₃ Nanoplates. *Nat. Commun.* , Nat. Commun., 12, 180 .
39. Ming-Yuan Hsieh, Jia-Yi Lin, Hui-Ning Wang, Hsing-Jung Li, Chia-Sui Yu,, Pei-Chun Chou, Chih-Cheng Wu, Chong-Jen Yu (2024 年 03 月)。 Five Major Missions of the Medical Center Accreditation Drives the Transformation of

Hospital Quality Management。醫療品質雜誌，18(2): 44-51。本人為通訊作者



林幸瑩 Hsing-Ying Lin, Ph.D.

Assistant Professor

Institute of Biomedical Engineering

National TsingHua University

Hsinchu 300, Taiwan

Email: hy.lin@mx.nthu.edu.tw

Dr. Hsing-Ying Lin serves as an Assistant Professor in the Institute of Biomedical Engineering at National Tsing Hua University. Before relocating to NTHU, she was a Research Fellow in the Center for Systems Biology, Massachusetts General Hospital, Harvard Medical School. She got prestigious MGH FMD fellowship (2018) and NIH T32 training grant (2019) in US. She focuses on the development of point-of-care devices with rapid streamlined assays. She has strong interests in the liquid biopsy arena, developing several integrated sensing platforms and streamlined signal enhancement assay methods for sensitive, high-throughput profiling of oncological/exosomal markers in clinical samples for translational medicine studies. Her publications encompass Nature Biomedical Engineering, ACS Nano, Small, Biosensor and Bioelectronics, Advanced Healthcare Materials, etc.

Publication List

February 2025

JOURNAL PUBLICATION

1. Sanskruti Swain, Ting-Yi Lin, I-Hsuan Chou, Shu-Chen Liu, Bikash C. Mallick, ***Hsing-Ying Lin****, Chen-Han Huang* (2024, Sep). Photoactive nanocatalysts as DTT-assisted BSA-AuNCs with enhanced oxidase-mimicking ability for sensitive fluorometric detection of antioxidants. *Journal of Nanobiotechnology*, 22, 585.
2. Isabel Gessner, Jin-Ho Park, ***Hsing-Ying Lin***, Hakho Lee, Ralph Weissleder*, “Magnetic Gold Nanoparticles with Idealized Coating for Enhanced Point-Of-Care Sensing,” *Advanced Healthcare Materials*, Volume11, Issue2 (2022 Jan.).

INVITED TALK

1. 2024/11/27-28 “Development of Droplet Digital Sensor for Disease Control and Diagnosis,” International Symposium on Nanobio Convergence, Kangwon National University, Chuncheon, Korea.
2. 2024/11/1-3 “Development of Affordable Sensing Technologies in Liquid Biopsy Diagnostics,” Development of Affordable Sensing Technologies in Liquid Biopsy Diagnostics, The 6th Global Conference on Biomedical Engineering & Annual Meeting of TSBME, Tainan, Taiwan.
3. 2024/10/27-30 “Development of Affordable Sensing Technologies in Liquid Biopsy Diagnostics,” Symposium 2-3 Chemical and Biological Sensors, The 7th International Conference on Active Materials and Soft Mechatronics, Songdo ConvensiA, Incheon, Korea
4. 2024/09/24 “Development of Affordable Sensing Technologies in Liquid Biopsy Diagnostics,” 113Y English Seminar at College of Engineering, National Tsing Hua University, TW
5. 2024/07/08 “Development of Affordable Sensing Technologies in Liquid Biopsy Diagnostics,” Institute of Molecular and Genomic Medicine, National Health Research Institutes, TW
6. 2024/05/26 “(Invited) AIoT-Integrated Digital Imaging Sensor for Molecular-Fingerprint Profiling of Extracellular Vesicles in Liquid Biopsy,” Session H02 – Emerging Sensing and Diagnostic Devices 1, Symposium – Solid State Electronics and Photonics in Biology and Medicine 10, 245th ECS Meeting, May 26-30, 2024, San Francisco, USA
7. 2024/04/27 “Liquid biopsy tools for extracellular vesicles,” Reading Club for

112Y Overseas Trainees, Taiwan Precision Medicine Talent Seed Training Program

8. 2024/04/10 “Liquid biopsy tools for extracellular vesicles,” Gerontechnology & Smart Healthcare, Precision Medicine Ph.D. Program, National Tsing Hua University, TW
9. 2023/12/08 “Plasmonic enhanced integrated magneto-electrochemical sensor,” Integration Lab, Life Science, Delta Research Center, Delta Electronics, Inc.
10. 2023/10/13 “Droplet Digital PCR Sensor,” Integration Lab, Life Science, Delta Research Center, Delta Electronics, Inc.
11. 2023/09/09 “Safe food, save life! Food safety by key-chain IoT iEAT sensing technology,” Bio+ICT (Information Communication Technology) Symposium, 2023 New "Food" Generation - Medicine and Food Come from the Same Source, Promotion Center of Precision Medicine (PCPM), National Taiwan University, TW
12. 2023/09/07 “Find a needle in a haystack: Liquid biopsy sensor in precision medicine, translation medicine, and systems biology,” Special Lecture Education Program for Math and Science Gifted Class, National Hsinchu Senior High School, Hsinchu, TW
13. 2023/07/27 “Looking for a needle in a haystack: Digital nucleic acid sensor,” 2023 Bio Asia-Taiwan, July 26-30, 2023, Taipei Nangang Exhibition Center, TW
14. 2023/06/19 “Find a needle in a haystack: Integrated AIoT digital bead-based sensor for molecular-fingerprint profiling of extracellular vesicles,” Session A: Chemical Sensors, 2023 International Conference on Smart Sensors (ICSS 2023), Jun 19th-20th, 2023, Tainan, TW
15. 2023/05/28-06/02 “Liquid biopsy tool: Integrated AIoT digital bead-based sensor for molecular-fingerprint profiling of extracellular vesicles,” Symposium H03, 243rd ECS Meeting with the 18th International Symposium on Solid Oxide Fuel Cells (SOFC-XVIII), May 28-June 2, 2023, Boston, MA
16. 2023/05/12 “Integrated sensing technology for translational medicine applications,” Seminar at Institute of Communications Engineering, National Tsing Hua University, TW
17. 2023/03/02 “Integrated sensing technology for translational medicine applications,” Seminar at Department of Biomedical Engineering, National Cheng Kung University, TW
18. 2023/01/28 Expert share in Biomedical field, Joint Employment Symposium, National Cheng Kung University New York Alumni Association, US
19. 2022/12/28 “Liquid biopsy sensor for translational medicine application,” International Intercollegiate PhD Program, National Tsing Hua University, TW

20. 2022/10/23 “Liquid biopsy sensor for translational medicine application,” International Conference on Smart Sensors, 27th Symposium of Association for Chemical Sensors in Taiwan, and 25th Nano Engineering and Microsystem Technology Conference (2022 ICSS, 27th SACST, and 25th NEMTC), October 22-23, 2022, National Chung Hsing University, Taichung, TW
21. 2022/09/20 “Integrated AIoT point-of-care devices in liquid biopsy and translational medicine studies,” Biomed AI PhD program, National Tsing Hua University, Hsinchu, TW
2022/07/28 “High-throughput sensing platform for extracellular vesicle detection,” The BIO Asia-Taiwan International Conference & Exhibition, July 28-31, 2022, Taipei Nangang Exhibition Center, TW
22. 2022/07/23 “Precision Medicine: Integrated AIoT point-of-care devices in liquid biopsy and translational medicine studies,” International Conference on Precision Nanomedicine in Theranostics & The 2022 Annual Meeting of Taiwan Nanomedicine Society, July 22-23, 2022, Sheraton Hotel, Hsinchu, TW
23. 2022/04/27 “Precision Medicine: Integrated point-of-care devices in liquid biopsy and translational medicine studies,” Precision Medicine Ph.D. Program, National Tsing Hua University, Hsinchu, TW
24. 2022/03/17 “Integrated AIoT sensing technologies in liquid biopsy and translational medicine studies,” Institute of Electro-Optical Science and Technology, National Taiwan Normal University, Taipei, TW

CONFERENCE

1. I-Hsuan Chou, Yen-Pei Lin, E-Ping Tsai, Sanskruti Swain, Ting-Yi Lin, Hsing-Ying Lin*, Chen-Han Huang*, Highly Ordered Self-Assembled Monolayer of Gold Nanoparticles as SERS Substrate for Acute Myocardial Infarction Diagnosis, The 6th Global Conference on Biomedical Engineering & Annual Meeting of TSBME, Tainan, Taiwan, November 1-3, 2024. **Excellent Award (Best Oral Competition)**
2. Tao-Yun Yen, Yu-He Liu, Li-Hsien Ho, I-Hsuan Chou, Zhi-Yang Wei, Yi-Chien Chen, Yun-Hsien Chung, Wei-Chun Lan, Hsien-Wen Yao, Peng-Wei Hsu*, Chen-Han Huang, Hsing-Ying Lin*, Establish isothermal reverse transcriptase recombinase polymerase amplification, 2023 ISOMRM & BCRS The 6th International Symposium of Materials on Regenerative Medicine, ISOMRM Annual Meeting of Biomaterials and Control Released Society in Taiwan, BCRS, 2023/8/31-9/3. **Outstanding Poster Award.**
3. I-Hsuan Chou, Sanskruti Swain, Ting-Yi Lin, Yu-De Wu, Chen-Han Huang*, Hsing-Ying Lin*, Biodegradable Polymeric Coatings for Surface Modification of

Magnesium Alloy Vascular Scaffolds, 2023 TSBME Annual Symposium of Taiwanese Society of Biomedical Engineering Project Report of National Science and Technology Council, November 11-12, 2023. **Outstanding Student Paper Award.**

4. Tao-Yun Yen, Yu-He Liu, Li-Hsien Ho, I-Hsuan Chou, Zhi-Yang Wei, Yi-Chien Chen, Yun-Hsien Chung, Wei-Chun Lan, Hsien-Wen Yao, Peng-Wei Hsu*, Chen-Han Huang, Hsing-Ying Lin*, Comparative profiling of fingerprints between proteins and nucleic acids in extracellular vesicles of glioblastoma using isothermal digital imaging sensor, 2023 International Conference on Smart Sensors/28th Symposium of Association of Chemical Sensors in Taiwan/26th Nano Engineering and Microsystem Technology Conference, June 19-20, 2023. **Excellent Poster Award.**
5. Tao-Yun Yen, Yu-He Liu, Li-Hsien Ho, I-Hsuan Chou, Zhi-Yang Wei, Yi-Chien Chen, Yun-Hsien Chung, Wei-Chun Lan, Hsien-Wen Yao, Peng-Wei Hsu*, Chen-Han Huang, Hsing-Ying Lin*, Development of a one-pot isothermal amplification method RT-RPA for rapid nucleic acid detection of brain tumor, International Conference on Precision Nanomedicine in Theranostics & The 2023 Annual Meeting of Taiwan Nanomedicine Society, July 21-22, 2023. **Honorable Award.**

HONOR

許至誠、李騏維、黃珮綺、王梓維、羅翌文、楊秉喻、劉安捷、石光義、朱珞駢、謝佩芸、呂冠匯、葉智凱、黃煜晏、陳琮宇、章繼樺、嚴尹蚊、鍾運賢、閻道蘊、藍偉峻、林幸瑩*

1. 2023 Little Dream Big Ambitious - Dream More Project Grant, Amway Hope Maker Charity Foundation, TW. NanoCircDx.
2. 2023 CTCI Foundation Science and Technology, Excellent Innovation and R&D in Research Award. NanoCircDx.
3. 2023 Gold Medal Award, the 8th iGEM, France. NanoCircDx.
4. 2023 iGEM Global Impact Grant, France. NanoCircDx.

PATENT

1. 數位生醫感測晶片方法及系統, TW
2. 用於修飾基材表面之含硫酯基化合物及基材表面的修飾方法, 108105855, TW.
3. 電化學量測方法及系統, 108105149, TW.
4. Composition for substrate surface modification and method using the same, 16/531,607, USA.
5. High-throughput electrochemical detection method and system, 16/788,705, USA.

6. Compound containing thioester group for modifying substrate surface and method using the same, 16/796,151, USA.



黃玠誠 Chieh-Cheng Huang, Ph.D.

Associate Professor
Institute of Biomedical Engineering
National Tsing Hua University
Hsinchu, Taiwan(ROC)
Email: chiehcheng@mx.nthu.edu.tw

Dr. Chieh-Cheng Huang received his bachelor's degree in Life Science from National Tsing Hua University (NTHU) in 2008 and his Ph.D. degree in Chemical Engineering from NTHU in 2015 under the supervision of Prof. Hsing-Wen Sung. Following the completion of his Ph.D., Dr. Huang conducted postdoctoral research from 2015 to 2017 under the joint mentorship of Prof. Hsing-Wen Sung at NTHU and Prof. Ren-Ke Li at the University of Toronto and University Health Network, Canada. In 2017, he joined the Institute of Biomedical Engineering at NTHU as an assistant professor and was promoted to associate professor in 2021. His research interests include tissue engineering and regenerative medicine, drug delivery, and biomaterials.

Publication List

February 2026

A. Journal Papers (*Corresponding Author)

1. Nguyen VAT[†], **Huang CC^{†*}**, Chen Y*, “Gas-based therapeutics and delivery platforms in cancer immunotherapy,” *Advanced Drug Delivery Reviews*, vol. 229, pp. 115746, 2026.
2. Yang PC, Kao YC, Lin YP, Chen GH, Liu SW, Ho CH, Huang SC, Lee PY, Chen L, **Huang CC***, “Polydopamine nanoparticle-enhanced stem cell spheroid-derived decellularized ECM with antioxidant and tissue adhesive properties for brain repair,” *Biomaterials*, vol. 324, pp. 123530, 2026.
3. Chung CW, Huang JY, Liang JG, Iffland L, Dayao LA, Dhanthala Chittibabu DK, Chi CC, Chen JL, Chan TS, Chen CL, Lu YR, **Huang CC**, Chou HH, Lin ZH, Chen YC, Lu MY, Chen HT, Apfel UP, Lai YC, Lu TT, “Magneto-voltaic activity of single-atom iron on reduced graphene oxide for magneto-catalytic conversion of H₂O₂ into O₂,” *Chemical Science*, vol. 17, pp. 1073–1097, 2026.
4. Kao YC, Yang PC, Lin YP, Chen GH, Liu SW, Ho CH, Huang SC, Lee PY, Chen L, **Huang CC***, “Tailoring the therapeutic potential of stem cell spheroid-derived decellularized ECM through post-decellularization BDNF incorporation to enhance brain repair,” *Biomaterials*, vol. 321, pp. 123332, 2025.
5. Chen GH, Sia KC, Liu SW, Kao YC, Yang PC, Ho CH, Huang SC, Lee PY, Liang MZ, Chen L, **Huang CC***, “Implantation of MSC spheroid-derived 3D decellularized ECM enriched with the MSC secretome ameliorates traumatic brain injury and promotes brain repair,” *Biomaterials*, vol. 315, pp. 122941, 2025.
6. **Huang CC***, Chang CK, Yang PC, Chiu H, Chen SH, Hsu LW, “Injectable glucose-releasing microgels enhance the survival and therapeutic potential of transplanted MSCs under ischemic conditions,” *Advanced Healthcare Materials*, vol. 14, pp. 2401724, 2025.
7. Ho CT, Kao YC, Shyu YM, Wang IC, Liu QX, Liu SW, Huang SC, Chiu H, Hsu LW, Hsu TS*, Hsieh WC*, **Huang CC***, “Assembly of MSCs into a spheroid configuration increases poly(I:C)-mediated TLR3 activation and the immunomodulatory potential of MSCs for alleviating murine colitis,” *Stem Cell Research & Therapy*, vol. 16, pp. 172, 2025.
8. Liu SW, Tsai MY, Shen YC, Hsueh YJ, Chiu H, Hsu LW, Chen HC, **Huang CC***, “Spheroid assembly of mesenchymal stem cells enhances secretome-mediated corneal reinnervation and epithelial repair in a mouse model of experimental dry eye,” *Journal of Tissue Engineering*, vol.16, 2025.

9. Chiu H, Fan AC, Chen YH, Koi RX, Yu KC, Hsieh LH, Shyu YM, Hsueh YJ, Tsao YT, Shen YJ, Chen HC*, Lu YJ*, **Huang CC***, Lu TT*, “Mechanistic and kinetic insights into cellular uptake of biomimetic dinitrosyl iron complexes and intracellular delivery of NO for activation of cytoprotective HO-1,” *JACS Au*, vol. 4, pp. 1550–1569, 2024.
10. Chen SH*, Wang HW, Yang PC, Chen SH, Ho CH, Yang PC, Kao YC, Liu SW, Chiu H, Lin YJ, Chuang EY, Huang JH, Kao HK, **Huang CC***, “Schwann cells acquire a repair phenotype after assembling into spheroids and show enhanced *in vivo* therapeutic potential for promoting peripheral nerve repair,” *Bioengineering & Translational Medicine*, vol. 9, pp. e10635, 2024.
11. Chen SH*, Lee YW, Kao HK, Yang PC, Chen SH, Liu SW, Yang PC, Lin YJ, **Huang CC***, “The transplantation of 3-dimensional spheroids of adipose-derived stem cells promotes Achilles tendon healing in rabbits by enhancing the proliferation of tenocytes and suppressing M1 macrophages,” *American Journal of Sports Medicine*, vol. 52, pp.406–422, 2024.
12. Yalamandala BN, Chen YJ, Lin YH, Huynh TMH, Chiang WH, Chou TC, Liu HW, **Huang CC**, Lu YJ, Chiang CS, Chu LA, Hu SH*, “A self-cascade penetrating brain tumor immunotherapy-mediated by near-infrared-II cell membrane-disrupting nanoflakes *via* detained dendritic cells,” *ACS Nano*, vol. 18, pp. 18712–18728, 2024.
13. Hsiao CH, Huang HL, Liu HL, **Huang CC**, Su JC, Chen YH, Lin YS*, “Combining ultrasound technology with targeted fucoidan/arginine-gelatin nanoparticles loaded with doxorubicin to enhance therapeutic efficacy and modulate bioeffects in drug-resistant triple-negative breast cancer,” *International Journal of Biological Macromolecules*, vol. 283, pp. 137764, 2024.
14. Chen SH*, Lien PH, Lin FH, Chou PY, Chen CH, Chen ZY, Chen SH, Hsieh ST, **Huang CC**, Kao HK*, “Aligned core-shell fibrous nerve wrap containing *Bletilla striata* polysaccharide improves functional outcomes of peripheral nerve repair,” *International Journal of Biological Macromolecules*, vol. 241, pp.124636, 2023.

B. Patents

1. **Huang CC**, Chiang CE, Fang YQ, Ho CT, Wang YC, Blocki A, “Decellularized extracellular matrix, preparation process and uses thereof.” (US Pat. No. 12,097,303 B2; 9/24/2024)
2. Lu TT, **Huang CC**, Chiu H, Wang WP, Wang RT, Lai YC, “External dermal composition and method for beautifying skin.” (US Pat. No. 11,883,517 B2; 1/30/2024)



裘正健 Jeng-Jiann Chiu, Ph.D.

Distinguished Investigator
Institute of Cellular and System Medicine
National Health Research Institutes

Email: jjchiu@nhri.edu.tw

Adjunct Professor
Institute of Biomedical Engineering
National TsingHua University
Hsinchu, Taiwan(ROC)

Chiu has been characterized as a bioengineer equipped with a broad academic background of multi-disciplines in vascular biology, mechanobiology, cellular and molecular biology, fluid mechanics, and tissue engineering. His research goal is to elucidate the molecular mechanisms of the regulation of vascular functions, with a special emphasis on the transduction of mechanical stimuli, such as blood flow-induced shear stress and complex flow pattern, into intracellular signaling and the ensuing gene expression and functional responses in health and disease. A multidisciplinary, integrative approach is used that combines engineering and biomedical sciences, including nanotechnology, multi-omics, DNA microarray, cell biophysics, biomechanics, and ex vivo and in vivo research on cardiovascular system. Chiu's research has significant implications in the understanding of the interplays between cellular/molecular and mechanical factors in the modulation of inflammatory state and atherogenesis of the vasculature. Such studies have important bearings on a variety of key clinical disorders such as myocardial infarction, stroke and intermittent claudication

Publication List

February 2026

A-1. Refereed Journal Papers and Book Chapters (*Corresponding Author)

1. Hu WP, Shih YT, Wang QY, Lee CI, Ma HY, Zhang QY, Ko YJ, Cai ZY, **Chiu JJ***, Qi R*. MicroRNA-146a prevents AAA development through repressing VSMC inflammation. *Hypertension*. 2026 Jan;83(1):57-72. doi: 10.1161/HYPERTENSIONAHA.125.25133. Epub 2025 Oct 31. NSTC 112-2326-B-400-001.
2. Pu Y, Dong P, Huang J, Wu Y, Luo JY, He L, Chen Q, Zhang CL, Cheng CK, Shih YT, **Chiu JJ**, Ma CW, Zuo Z, Wang L, Huang Y. Endothelial TBK1 deficiency inhibits endothelial-to-mesenchymal transition and atherogenesis through suppressing PAK1/ERK1/2 signaling. *Circ Res* (In press), 2026. NSTC 112-2326-B-400-001.
3. Wang WL, Shih YT, Wei SY, **Chiu JJ***. Impacts of aging and fluid shear stress on vascular endothelial metabolism and atherosclerosis development. *J Biomed Sci*. 2025 Sep 1;32(1):83. doi: 10.1186/s12929-025-01177-z. NSTC 112-2326-B-400-001.
4. Jiang M, Ding H, Huang Y, Lau CW, Guo Y, Luo J, Shih YT, Xia Y, Yao X, **Chiu JJ**, Wang L, Chien S, Huang Y. Endothelial serotonin receptor 1B acts as a mechanosensor to drive atherosclerosis. *Circ Res*. 2025 Apr 11;136(8):887-901. NSTC 112-2326-B-400-001.
5. Wei SY, Fu WS, Liu CH, Wang WL, Shih YT, Chien S*, **Chiu JJ***. Identification of KU-55933 as an anti-atherosclerosis compound by using a hemodynamic-based high-throughput drug screening platform. *Proc Natl Acad Sci U S A*. 121:e2318718121. doi: 10.1073/pnas.2318718121, 2024. NSTC 112-2326-B-400-001.
6. Shih YT, Cheng KC, Ko YJ, Lin CY, Wang MC, Qi R*, **Chiu JJ***, Hsu SH*. 3D-printed proangiogenic patches of photo-crosslinked gelatin and polyurethane hydrogels laden with vascular cells for treating vascular ischemic diseases. *Biomaterials* 309:122600. doi: 10.1016/j.biomaterials. 2024. NSTC 112-2326-B-400-001.
7. Ding H, Chi W, Ying G Jian F, Shih YT, **Chiu JJ**, Wang L, Chien S, Huang, Y. Endothelial serotonin receptor 1B acts as a mechanosensor to drive atherosclerosis. *Circ Res* (In revision), 2024. NSTC 112-2326-B-400-001.
8. Pu Y, Dong P, He L, Huang J, Wu Y, Luo JY, Chen Q, Zhang CL, Cheng C, Fan G, Ng CF, Shih YT, **Chiu JJ**, Zuo Z, Ma R, Wang L, Huang Y. Endothelial TBK1 deficiency inhibits endothelial-to-mesenchymal transition and atherogenesis through suppressing PAK1/ERK1/2 signaling. *Circulation* (In submission), 2024. NSTC 112-2326-B-400-001.
9. Shih YT, Wei SY, Chen JH, Wang WL, Wu HY, Wang MC, Lin CY, Lee PL, Lin CY, Chiang HC, Chen YJ, Chien S, **Chiu JJ***. Vinculin phosphorylation impairs vascular endothelial junctions promoting atherosclerosis. *Eur Heart J*. 44:304-318, 2023. **This paper was featured in a commentary in *Eur Heart J***. MOST 109-2326-B-400-006/109-2320-B-400-010-MY3.
10. Cheng CK, Lin X, Pu Y, Tse KY, Wang Y, Zhang CL, Cao X, Lau CW, Huang J, He L, Luo JY, Shih YT, Wan S, Ng CF, Wang L, Ma CW, **Chiu JJ**, Chan TF, Tian XY, Huang Y, SOX4 is a novel phenotypic regulator of endothelial cells during atherosclerotic diseases revealed by single-cell analysis. *J Adv Res*. Jan;43:187-203, 2023. MOST 109-2326-B-400-006/109-2320-B-400-010 -MY3.

11. Wei SY, Shih YT, Wu HY, Wang WL, Lee PL, Lee CI, Lin CY, Chen YJ, Chien S, **Chiu JJ***. Endothelial Yin Yang 1 phosphorylation at S118 induces atherosclerosis under flow. *Circ Res.* 129:1158-1174, 2021. MOST 109-2326-B-400-006/109-2320-B-400-010-MY3.
12. Wang WL, Chen LJ, Wei SY, Shih YT, Huang YH, Lee PL, Lee CI, Wang MC, Lee DY, Chien S, **Chiu JJ***. Mechanoresponsive Smad5 enhances miR-487a processing to promote vascular endothelial proliferation in response to disturbed flow. *Front Cell Dev Biol.* 9:647714, doi: 10.3389/fcell.2021.647714, 2021. MOST 109-2326-B-400-006/109-2320-B-400-010-MY3.
13. Anwaier G, Lian G, Ma GZ, Shen WL, Lee CI, Lee PL, Chang ZY, Wang YX, Tian XY, Gao XL, **Chiu JJ***, Qi R*. Punicalagin attenuates disturbed flow-induced vascular dysfunction by inhibiting force-specific activation of Smad1/5. *Front Cell Dev Biol.* 9:697539. doi: 10.3389/fcell.2021.697539, 2021. MOST 109-2326-B-400-006.
14. Fang SY, Huang CW, Huang TC, Yadav A, **Chiu JJ**, Wu CC. Reduction in microRNA-4488 expression induces NFκB translocation in venous endothelial cells under arterial flow. *Cardiovasc Drugs Ther.* 35:61-71, 2021. MOST 108-2321-B-400-001.
15. Kuo JT, Tsai HE, Lin CT, Lee CI, Lee PL, Ruan YR, **Chiu JJ**, Lee DY. Low levels of microRNA-10a in cardiovascular endothelium and blood serum are related to human atherosclerotic disease. *Cardiol Res Pract.* Jul 15;2021:1452917. doi: 10.1155/2021/1452917. eCollection 2021. MOST 109-2326-B-400-006/109-2320-B-400-010-MY3.

B-1. Invited Speakers/Presentations

1. 2026 TMU Postdoctoral and Young Scholar Research Symposium, Jen 27, 2026, Taipei, Taiwan.
2. 台灣高血壓學會 114 年度會員大會暨學術演講會特邀演講 (Dec 7, 2025)
3. 第 52 屆國軍軍醫學術研討會暨 2025 校慶醫學週大會特邀演講(Nov 22, 2025)
4. 萬芳醫院-國科會計畫經驗分享「如何撰寫國科會計畫並通過」(Oct 31, 2025)
5. ISHR2025/NARA XXV World Congress International society for Heart Research, May 11-14, Nara Prefectural Convention Center, Japan, 2025
6. 成大醫院內科部晨會特別演講 (April 24, 2025)
7. 2025 TMU Postdoctoral and Young Scholar Research Symposium, Feb 18, 2025, Taipei, Taiwan.
8. The 9th Scientific Meeting of The Asian Society for Vascular Biology, November 29-December 1, 2024, Nanjing China.
9. Invited Lecture on “Science and Technology Project Management Organization Recharge Learning”, Taiwan Food and Drug Administration, Sep. 25, Taipei, Taiwan, 2024.
10. The Annual Scientific Meeting of Taiwan Society of Lipids & Atherosclerosis 2024 and The 23rd Taipei International Vascular Biology Symposium, Sep. 14-15, Taipei, Taiwan, 2024.
11. Invited Lecture on the PI retreat of the Institute of Cellular and System Medicine, National Health Research Institutes, Sep. 11, Taichung, Taiwan, 2024.
12. Taipei Tzu Chi Hospital Academic Seminar, May 25, Taipei, Taiwan, 2024.
13. The First International Meeting of the Taiwan Circulation Research Society

- (TCRS), March 12, Taipei, Taiwan, 2024.
14. Taipei Medical University "Sharing Experience in Project Writing" Lecture Series, March 5, Taipei, Taiwan, 2024
 15. Chiayi Chang Gung Memorial Hospital, Jan 20, Chiayi, Taiwan, 2024.
 16. 2023 National Science and Technology Council Excellent Academic Research Seminar and Annual Academic Conference of Taiwan Society of Nephrology, Dec. 9, Taipei, Taiwan, 2023.
 17. Taipei Medical University Hospital Academic Symposium, Nov. 17, Taipei, Taiwan, 2023.
 18. "Book and Newspaper Discussion" Symposium, Department of Mechanical Engineering, Chung Yuan University, Oct. 18, Chung-Li, Taiwan, 2023.
 19. Medical Research Symposium, School of Medicine, National Taiwan University, Sep. 27, Taipei, Taiwan, 2023.
 20. The 112th Annual General Meeting and The 22nd Taipei International Symposium on Vascular Molecular Biology, Taiwan Society of Lipids & Atherosclerosis, Sep. 17, Taipei, Taiwan, 2023.
 21. Biomechanics in Vascular Biology and Disease, Gordon Research Conference, Mount Holyoke College, , August 6-11, South Hadley, MA, USA.
 22. Distinguished Lectures on Life Sciences, College of Life Sciences, National Chung Hsing University, May 12, Taichung, Taiwan.
 23. Innovative Outstanding Academic Lecture, Taipei Medical University, March 20, Taipei, Taiwan.
 24. The International Symposium on "Prognostic and Therapeutic implications of RKIP and YY1 in Cancer, Diabetes and Cardiovascular Diseases", March 8-11, Catania, Italy, 2023.
 25. 2022 Engineering Bioscience Symposium - Challenges & Opportunities in Post-Pandemic Era. National Yang Ming Chiao Tung University, Nov. 18, Hsin-Chu, 2022.
 26. Taiwan-Japan Science and Technology Forum, Sep. 8-9, Taipei, 2022.
 27. The 39th Congress of the International Union of Physiological Sciences, May 6, Beijing, China, 2022.
 28. Department of Life Science, National Taiwan University, April 22, Taipei, 2022.



萬德輝 Dehui Wan, Ph.D.

Professor

Institute of Biomedical Engineering

National Tsing Hua University

Hsinchu, Taiwan (ROC)

Email: dhwan@mx.nthu.edu.tw

Website: <http://nthubmewanlab.wixsite.com/dehuiwanlab>

Dehui Wan is a Professor, Institute of Biomedical Engineering, National Tsing Hua University. He received his B.S. (2003) in Chemistry and Ph.D. (2010) in Material Science and Engineering at the National Taiwan University. He later worked as a postdoctoral research fellow of Department of Biomedical Engineering, Georgia Institute of Technology. He joined the faculty of National Tsing Hua University as a tenure-track Assistant Professor in 2013. He rose through the ranks to Professor in 2023. His research interests are functional nanostructures for biomedical and optical applications such as bio/chemical sensors, photothermal cancer therapy, antibiofilm coatings for implants, ultrabroadband photodetector, and passive radiative cooling systems. Professor Wan has received numerous awards such as Future Tech Award (未來科技獎), Dr. Zhao-ren Li Biomedical Engineering Research Scholar Award, Young Chemist Award from Chemical Society Located in Taipei, Young Investigator Award from the Nanotechnology and Micro System Association, the Academic Outstanding Paper Award from the Association of Chemical Sensors in Taiwan, the LITE-ON Innovation Award, Young Investigator Award of National Tsing Hua University, Young Investigator Award of College of Engineering, National Tsing Hua University, Lite-on Award and Dr. Zhao-ren Li Biomedical Engineering Young Investigator Award. Professor Wan has published 60 scientific papers and received 11 international patents.

Publication List

January 2026

A. Refereed Journal Papers and Book Chapters (*Corresponding Author)

1. L.-C. Yang, C.-W. Hwang, S.-H. Tsao, H.-Y. Lin*, Y. Chen*, **Dehui Wan*** “Injectable near-infrared–responsive silk fibroin nanocomposite hydrogel enabling spatiotemporally controlled photothermal chemotherapy” *Chemical Engineering Journal*, 2026, 529, 173044 (IF: 13.2; Rank: 3.6%).
2. Y.-N. Ngoc Ta, V.-A. Thi Nguyen, T.-T. Can, M.-C. Hsieh, B. G. Thi Cao, **Dehui Wan**, C.-H. Lai, C.-C. Wu, F.-F. Hsu, Y.-T. Yen*, S.-N. Wang*, Y. Chen* “Stimuli-Responsive Nanozyme Reprograms Tumor Immunometabolism and Overcomes Therapeutic Resistance in Hepatocellular Carcinoma” *ACS Nano*, 2026, 20, 1870–1884 (IF: 16.0; Rank: 6%).
3. L.-C. Lu, W.-R. Chen, C.-L. Kuo, **Dehui Wan*** “Portable surface-enhanced Raman scattering platform for rapid identification of nanoplastics at single-particle level” *Journal of Hazardous Materials*, 2025, 498, 139896 (IF: 11.3; Rank: 5%).
4. D.-C. Chen, C.-W. Hwang, C. Y. Chang, C.-L. Kuo, H.-L. Chen, P.-H. Lan, M.-T. Tsai, T.-W. Wang, **Dehui Wan*** “Superdurable, Flexible Ceramic Nanofibers for Sustainable Passive Radiative Cooling” *ACS Nano*, 2025, 19, 28280-28294 (IF: 16.0; Rank: 6%).
5. P.-H. Lan, C.-W. Hwang, T.-C. Chen, T.-W. Wang, H.-L. Chen*, **Dehui Wan*** “Hierarchical Ceramic Nanofibrous Aerogels for Universal Passive Radiative Cooling” *Advanced Functional Materials*, 2024, 34, 2410285 (highlighted on the Journal Frontispiece) (IF: 18.5; Rank: 4.3%).
6. W.-L. Wu, S. Y. Tsai, Y.-C. Lo, H.-C. Wang, H.-L. Chen, **Dehui Wan**, F.-H. Ko* “Design of a Multifunctional Resin-Based Outdoor Spherical Robot Shell for Ultrahigh Visible to Near-Infrared Transmittance and Mid-Infrared Radiative Cooling” *ACS Omega*, 2025, 10, 3, 3080–3089.
7. S.-L. Cheng, H.-M. Lee, C.-P. Li, M.-W. Lin, M.-Y. Chou, Y.-T. Yen, T.-H. Wu, Y.-C. Lian, Yu-C. Shih, C.-S. Chiang, T.-W. Chen*, **Dehui Wan***, Y. Chen.* “Robust and Sustained STING Activation via Hydrogel-Based In-Situ Vaccination for Cancer Immunotherapy” *ACS Nano*, 2024, 18, 29439–29456 (IF: 15.8; Rank: 6%).
8. Q.-T. Le, S.-W. Chang, B.-Y. Chen, H.-A. Phan, An-Chen Yang, F.-H. Ko, H.-C.

- Wang, N.-Y. Chen, H.-L. Chen*, **Dehui Wan***, Y.-C. Lo* “AI-enabled design of extraordinary daytime radiative cooling materials” *Solar Energy Materials & Solar Cells*, 2024, 178, 113177 (IF: 6.3; Rank: 16.2%).
9. J.-G. Liang, W.-X. Gao, C.-W. Chung, L. A. Dayao, H.-H. Chou, Z.-H. Lin, **Dehui Wan**, J.-H. Huang, Y.-C. Chen*, T.-T. Lu* “Structure-dependent magnetoelectric and magnetothermal effects of MOF-derived zero-valence cobalt and iron oxide nanoparticles on a carbonaceous matrix” *Chemical Communications*, 2024, 60, 10136-10139 (IF: 4.3; Rank: 30.8%).
 10. S.-W. Chang, Y.-J. Chen, **Dehui Wan**, H.-L. Chen* “Black and White: Bifunctional Optical Standard for Near-Perfect White Light Diffuse Reflection and Blackbody Radiation” *Optica*, 2024, 11, 1303-1312 (IF: 8.4; Rank: 7.5%).
 11. Y.-J. Chen, S.-W. Chang, H.-C. Wang, S.-K. Lim, C.-I Huang, F.-H. Ko, Y.-C. Lo, **Dehui Wan***, H.-L. Chen* “Daytime radiative cooling of single-board computer in nearly enclosed unmanned surface vehicle” *Solar Energy Materials & Solar Cells*, 2024, 268, 112723 (IF: 6.9; Rank: 16.3%).
 12. H.-Y. Mu, Y.-N. N. Ta, M. J. R. Tham, F.-F. Hsu, Y.-C. Lin, H.-C. Huang, Y.-C. Sung, C.-I Huang, C.-L. Wu, C.-H. Chang, S. Yang, T.-Yi. Lee, **Dehui Wan**, J. Wang, D. G. Duda, Y. Boucher, J.-H. Huang*, W. H. Ang*, Y. Chen* “A Chemoimmunotherapy Nanogel Enables Efficient Delivery of Interleukin-2 and Induction of Immunogenic Cell Death for Effective Cancer Therapy” *Advanced Functional Materials*, 2023, 34, 2303033 (IF: 19.0; Rank: 4.65%).
 13. S. H. Tsao, A. Y. Sun, Y.-C. Lee, C.-W. Hwang, K.-T. Lin, Y.-S. Lai, L.-C. Yang, H.-L. Chen*, **Dehui Wan*** “Solution-Processable Three-Dimensional Metamaterials with Ultrahigh Broadband Absorption for Photothermal Electronic Conversion”, *Laser & Photonics Reviews*, 2023, 17, 2300315 (IF: 11; Rank: 8%).
 14. Y.-H. Chen, C.-C. Chen, L.-C. Lu, C.-Y. Lan, H.-L. Chen*, T.-H. Yen*, **Dehui Wan*** “Wafer-scale Fibrous SERS Substrates Allow Label-Free, Portable Detection of Food Adulteration and Diagnosis of Pesticide Poisoning”, *Sensors and Actuators B: Chemical*, 2023, 391, 134035 (IF: 8.4; Rank: 1.58%).
 15. S.-W. Chang, Y.-J. Chen, **Dehui Wan**, H.-L. Chen* “Near-Room-Temperature Waste Heat Recovery Through Radiative Cooling for Both Daytime and Nighttime Power Generation”, *Journal of Materials Chemistry A*, 2023, 11, 15183-15195 (highlighted on the Journal Back Cover) (IF: 14.511; Rank: 7.51%).
 16. Y.-H. Chen, C.-W. Hwang, S.-W. Chang, M.-T. Tsai, K. N. Jayakumaran, L.-C.

- Yang, Y.-C. Lo, F.-H. Ko, H.-C. Wang, H.-L. Chen,* **Dehui Wan*** “Eco-Friendly Transparent Silk Fibroin Radiative Cooling Film for Thermal Management of Optoelectronics”, *Advanced Functional Materials*, 2023, 33, 2301924 (highlighted on the Journal Inside Back Cover) (IF: 19.924; Rank: 4.91%).
17. Y.-C. Hsieh, C.-Y. Lin, H.-Y. Lin, C.-T. Kuo, S.-Y. Yin, Y.-H. Hsu, H.-F. Yeh, J. Wang*, **Dehui Wan*** “Controllable-Swelling Microneedle-Assisted Ultrasensitive Paper Sensing Platforms for Personal Health Monitoring”, *Advanced Healthcare Materials*, 2023, 12, 2300321 (highlighted on the Journal Cover) (IF: 11.092; Rank: 8.16%).
18. H.-Y. Lin, W.-Ru Chen, L.-C. Lu, H.-L. Chen, Y.-H. Chen, M. Pan, C.-C. Chen, C. Chen*, T.-H. Yen*, **Dehui Wan*** “Direct Thermal Growth of Gold Nanoparticles on 3D Interweaved Hydrophobic Fibers as Ultrasensitive Portable SERS Substrates for Clinical Applications”, *Small*, 2023, 19, 2207404 (highlighted on the Journal Frontispiece) (IF: 15.153; Rank: 6.83%).
19. M.-T. Tsai, S.-W. Chang, Y.-J. Chen, H.-L. Chen, P.-H. Lan, D.-C. Chen, F.-H. Ko, Y.-C. Lo, H.-C. Wang, **Dehui Wan*** “Scalable, Flame-resistant, Superhydrophobic Ceramic Metafibers for Sustainable All-day Radiative Cooling”, *Nano Today*, 2023, 48, 101745 (IF: 18.962; Rank: 5.49%).

B. Conference Papers

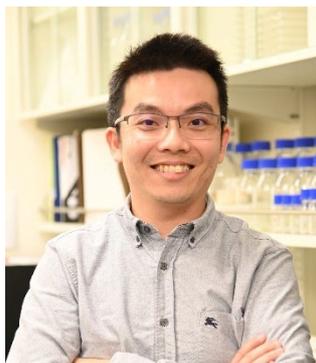
1. L.-C. Lu, C.-L. Kuo, W.-R. Chen, **Dehui Wan*** “Rapid Identification of Nanoplastics via Ultrasensitive Surface-Enhanced Raman Scattering (SERS) Detection for Food Safety”, American Chemical Society Spring 2025 Meeting & Expo (ACS Spring 2025), San Diego, United States of America (2025). (Oral)
2. L.-C. Lu, **Dehui Wan*** “An anti-fluorescence ultrasensitive paper-based plasmonic array 1064-nm SERS system for clinical applications”, American Chemical Society Spring 2025 Meeting & Expo (ACS Spring 2025), San Diego, United States of America (2025). (Oral)
3. C.-L. Kuo, Y.-P. Hwang, H.-W. Yang*, **Dehui Wan*** “Swelling Microneedle-Assisted Paper-Based SERS Platform for Detection in Living Organisms”, American Chemical Society Spring 2025 Meeting & Expo (ACS Spring 2025), San Diego, United States of America (2025). (Oral)

4. C.-L. Kuo, Y.-C. Hsieh, C.-Y. Lin, J. Wang*, **Dehui Wan*** “Microneedle Patch-Assisted Minimally Invasive Sensing System Based on Paper-Based Surface-Enhanced Raman Spectroscopy”, American Chemical Society Spring 2025 Meeting & Expo (ACS Spring 2025), San Diego, United States of America (2025).
5. C.-W. Hwang, M.-T. Tsai, P.-H. Lan, T.-C. Chen, **Dehui Wan*** “Scalable, Flame-resistant, Superhydrophobic Ceramic Metafibers for Sustainable All-day Radiative Cooling”, Micro and Nano Engineering (MNE), Berlin, Germany (2023). (Oral)
6. C.-W. Hwang, Y.-H. Chen, **Dehui Wan*** “Eco-friendly transparent silk fibroin radiative cooling film for thermal management of optoelectronics”, Micro and Nano Engineering (MNE), Berlin, Germany (2023).
7. L. C. Lu, Y. L. Chang, I. C. Lai, S. W. Chang, A. Y. Sun, **Dehui Wan*** and H. L. Chen* “Wafer-scale nanocracks enable single-molecule detection and on-site analysis”, 243rd ECS and SOFC-XVIII Meeting, Boston, United States of America (2023). (Oral)
8. T.-C., Chen, M.-T., Tsai, P.-H. Lan, and **Dehui Wan*** “All-ceramic Zirconia-Alumina Nanofibers for Durable Passive Daytime Radiative Cooling”, 2023 European Materials Research Society Spring Meeting (2023 E-MRS Spring Meeting), Strasbourg, France (2023). (Oral)
9. P.-H. Lan, M.-T., Tsai, T.-C. Chen, and **Dehui Wan*** “Bio-inspired radiative cooling aerogel for sustainable cold preservation in developing countries”, 2023 European Materials Research Society Spring Meeting (2023 E-MRS Spring Meeting), Strasbourg, France (2023). (Oral)

C. Patents

1. **Dehui Wan**, M.-T. Tsai, S.-W. Chang, Y.-J. Chen, H.-L. Chen, “Thermal radiation heat dissipation device and preparation method and applications thereof”, TW I808520. (Applications for US and CN patents)
2. **Dehui Wan**, C.-W. Hwang, S.-W. Chang, Y.-J. Chen, H.-L. Chen, “Thermal radiation heat dissipation device for electronic component and preparation method thereof”, US 12,495,526 B2 (Applications for TW and CN patents).
3. **Dehui Wan**, S.-W. Chang, Y.-J. Chen, H.-L. Chen, “Composite heat dissipation device and preparation method and applications thereof”, TW I782772, US 11,821,697 B2. (Applications for CN patent)

4. **Dehui Wan**, Y.-H. Chen, H.-L. Chen, "Surface enhanced Raman scattering device and method of manufacturing the same", TW I699524 and US 10,962,482 B2.
5. **Dehui Wan**, S.-Y. Tseng, S.-Y. Yi, "A heavy metal detecting device and the fabricating method thereof", TW I612288 and US 9,891,204 B2.
6. **Dehui Wan**, S.-Y. Tseng, C.-Y. Yang, S.-T. Lin, C.-M. Cheng, "A fiber based sensor and the fabricating method thereof" TW I566943 and US 9,469,529 B2.
7. H.-L. Chen, C.-Y. Fan, Y.-C. Lee, Y.-L. Liu, **Dehui Wan**, "Optical device and method for manufacturing the same)", TW I481084 and US 8,928,024 B2.



魯才德 Tsai-TeLu, Ph.D.

Professor
Institute of Biomedical Engineering
Department of Chemistry (Joint Appointment)
National Tsing Hua University
Hsinchu, Taiwan
Email: tlu@mx.nthu.edu.tw
Website: <https://sherry7509.wixsite.com/luresearchgroup>

Dr. Tsai-Te Lu received his Ph.D. degree (2009) from Department of Chemistry in National Tsing Hua University under the support from NTHU President's Scholarship. After one-year postdoctoral research experience in Prof. Wen-Feng Liaw's group, he received the Postdoctoral Research Abroad Program Fellowship to pursue the postdoctoral research in Prof. Stephen J. Lippard's lab (Department of Chemistry, MIT) through 2011 to 2013. After the training in bioinorganic chemistry, Dr. Lu started his independent research in Department of Chemistry in Chung Yuan Christian University aiming at the development of innovative inorganic compounds and materials for the novel biomedical application. In particular, Dr. Lu explored dinitrosyl iron complexes (DNICs) for the controlled delivery of nitric oxide and metal-organic framework for drug delivery. To establish a bioinorganic engineering lab, Dr. Lu joined Institute of Biomedical Engineering in National Tsing Hua University in 2017 and Department of Chemistry in National Tsing Hua University as an adjunct Professor in 2022. He received Rising Star Award in 43rd International Conference on Coordination Chemistry (2018), Graeme Hanson-AsBIC Early Career Researcher Award (2018), Young Investigator Award from Chao-Jen Lee (李昭仁) Biomaterial Research Foundation (2019), Young Investigator Award from National Tsing Hua University (2020), Excellent Junior Research Investigators from MOST (2020/2023), Young Investigator Award from Shui-Mu Foundation of Chemistry (2023), Ta-You Wu Memorial Award from National Science and Technology Council (2024), and Young Chemist Award from Chemistry Society of Taiwan (2025).

Publication List

February 2026

A. Refereed Journal Papers (*Corresponding Author)

1. Chieh-Wei Chung, Jyun-Yau Huang, Jing-Guan Liang, Linda Iffland, Loise Ann Dayao, Dinesh Kumar Dhanthala Chittibabu, Chong-Chi Chi, Jeng-Lung Chen, Ting-Shan Chan, Chi-Liang Chen, Ying-Rui Lu, Chieh-Cheng Huang, Ho-Hsiu Chou, Zong-Hong Lin, Ying-Chieh Chen, Ming-Yen Lu, Hsin-Tsung Chen,* Ulf-Peter Apfel,* Yei-Chen Lai,* **Tsai-Te Lu*** “Magneto-voltaic Activity of Single-atom Iron on Reduced Graphene Oxide for Magneto-catalytic Conversion of H₂O₂ into O₂” *Chem. Sci.* **2026**, *17*, 1073-1097. (SCI IF 7.5; ranking 42/239 = 17.6%, Chemistry, Multidisciplinary)
2. Xiao-Qi Chena, Priya Vijayaraghavana, Sathyadevi Palanisamy, Tarik Abdelkareem Mostafa Amer, **Tsai-Te Lu**, Chiao-Yun Chen*, Yun-Ming Wang* “Stepwise Hydrothermally Synthesized Gold Nanoparticles Supported Copper Metal-organic Frameworks as an Impedimetric Immunosensor for the Ultrasensitive Detection of Pancreatic Cancer” *Electrochim. Acta* **2025**, *542*, 147524. (SCI IF 5.6; ranking 11/44 = 25.0%, Electrochemistry)
3. Wun-Yan Wu, Yu-Shen Lin, Linda Iffland, Ulf-Peter Apfel, **Tsai-Te Lu**, Wen-Feng Liaw* “Receptor-Mediated and Hydrolytic Denitrosylation of Dinitrosyl Iron Complexes to Yield Amorphous Fe_xO_y and Its Photoinduced Transformation into Crystalline Fe@Fe_xO_y Nanoparticles” *Inorg. Chem.* **2025**, *64*, 12708-12721. (SCI IF 4.3; ranking 8/44 = 18.2%, Chemistry, Inorganic & Nuclear).
4. Yen-Yun Wang, Pang-Yu Chen, Naorem Jemes Meitei, Yu-Ren Lin, **Tsai-Te Lu**, Hieu D.H. Nguyen, Sodio C.N. Hsu,* Shyng-Shiou F. Yuan* “Copper-nitrite complexes release nitric oxide and selectively induce oral precancer and cancer cell apoptosis” *J. Inorg. Biochem.* **2025**, *265*, 112833. (SCI IF 4.155; ranking 9/45 = 20.0%, Chemistry, Inorganic & Nuclear)
5. Ruei-Fong Tsai, Hung-Ying Chen, Yang-Chun Cheng, Feng-Chun Lo, **Tsai-Te Lu**, Wen-Feng Liaw, Yun-Wei Chiang* “Regulatory Mechanisms and Synergistic Enhancement of the Diiron YtfE Protein in Nitric Oxide Reduction” *Chem. Eur. J.*

- 2025, 31, e202403680. (SCI IF 3.9; ranking 80/231 = 34.6%, Chemistry, Multidisciplinary)
6. Han Chiu, Anyelina Chau Fang, Yi-Hong Chen, Ru Xin Koi, Kai-Ching Yu, Li-Hung Hsieh, Yueh-Ming Shyu, Tarik Abdelkareem Mostafa Amer, Yi-Jen Hsueh, Yu-Ting Tsao, Yang-Jin Shen, Yun-Ming Wang, Hung-Chi Chen,* Yu-Jen Lu,* Chieh-Cheng Huang,* **Tsai-Te Lu*** “Mechanistic and Kinetic Insights into Cellular Uptake of Biomimetic Dinitrosyl Iron Complexes and Intracellular Delivery of NO for Activation of Cytoprotective HO-1” *JACS Au* **2024**, 4, 1550-1569. (SCI IF 8.5; ranking 35/230 = 15.2%, Chemistry, Multidisciplinary)
 7. Sathyadevi Palanisamy, Priya Vijayaraghavan, Tsu-Yin Cheng, Sarin Kumar Kappithottam, Duraisamy Senthil Raja, Xiao-Qi Chen, **Tsai-Te Lu,*** Chiao-Yun Chen,* Yun-Ming Wang* “Impedimetric identification of heteroMOFs modified porous nickel foam self-supports as robust electrodes for CA 19-9 pancreatic tumor marker in human serum” *Appl. Mater. Today*. **2024**, 40, 102375. (SCI IF 7.2; ranking 85/438 = 19.4%, Materials Science, Multidisciplinary)
 8. Jing-Guan Liang, Wei-Xiang Gao, Loise Ann Dayao, Chieh-Wei Chung, Ho-Hsiu Chou, Zong-Hong Lin, Dehui Wan, Jen-Huang Huang, Ying-Chieh Chen,* **Tsai-Te Lu*** “Structure-dependent Magnetoelectric and Magnetothermal Effects of MOF-derived Zero-valence Cobalt and Iron Oxide Nanoparticles on Carbonaceous Matrix” *Chem. Comm.* **2024**, 60, 10136-10139. (SCI IF 4.3; ranking 71/230 = 30.9%, Chemistry, Multidisciplinary)
 9. Yin-Hsuan Sun, Huey-Ling You, Manmath Narwane, Ru Xin Koi, Chai-Lin Kao, Shyng-Shiou F. Yuan, Wei-Ting Liao, **Tsai-Te Lu,*** Sodio C. N. Hsu* “A half-sandwich Ru(II)-p-cymene nitrite complex selectively induces cell death in cisplatin-resistant malignant melanoma cells” *Dalton Trans.* **2024**, 53, 12620-12626. (SCI IF 3.5; ranking 13/44 = 29.5%, Chemistry, Inorganic & Nuclear)
 10. Ruei-Fong Tsai, Hung-Ying Chen, Yang-Chun Cheng, Feng-Chun Lo, **Tsai-Te Lu,** Wen-Feng Liaw, Yun-Wei Chiang* “Regulatory Mechanisms and Synergistic Enhancement of the Diiron YtfE Protein in Nitric Oxide Reduction” *Chem. Eur. J.* **2024**, 53, ASAP. (SCI IF 3.5; ranking 13/44 = 29.5%, Chemistry, Inorganic & Nuclear)

11. Hsun-Tzu Tsen, Tzu-Chieh Sun, To-Kai Lai, Wei-Yuan Huang, Huan-Chih Wang, **Tsai-Te Lu**, Tzu-Wei Wang* “Cisplatin-activated and hemoglobin-mediated injectable hydrogel system for antitumor chemodynamic and chemotherapy” *Biomedicine & Pharmacotherapy* **2024**, *175*, 116713. (SCI IF 6.9; ranking 15/354 = 4.2%, Pharmacology & Pharmacy)

12. Cheng-Jhe Liao, Yu-Ting Tseng, Yu-An Cheng, Loise Ann Dayao, Linda Iffland-Mühlhaus, Leland B. Gee, Ryan D. Ribson, Ting-Shan Chan, Ulf-Peter Apfel*, **Tsai-Te Lu*** “Ligand Control of Dinitrosyl Iron Complexes for Selective Superoxide-Mediated Nitric Oxide Monooxygenation and Superoxide–Dioxygen Interconversion” *J. Am. Chem. Soc.* **2023**, *145*, 20389-20402. (SCI IF 14.4; ranking 17/230 = 7.4%, Chemistry, Multidisciplinary)

13. Tsung-Ying Lee, Hung-Hsun Lu, Hui-Teng Cheng, Hsi-Chien Huang, Yun-Jen Tsai, I-Hsiang Chang, Chao-Peng Tu, Chieh-Wei Chung, **Tsai-Te Lu**,* Chi-How Peng,* Yunching Chen* “Delivery of nitric oxide with a pH-responsive nanocarrier for the treatment of renal fibrosis” *J. Control. Release* **2023**, *354*, 417-428. (SCI IF 10.5; ranking 12/354 = 3.4%, Pharmacology & Pharmacy; ranking 26/230 = 11.3%, Chemistry, Multidisciplinary).

14. Shih-Hao Chang, Hui-Yi Hsiao,* Yi-Hong Chen, Ming-Huei Cheng, Jia-Wei Liu, Hsiao-Jo Huang, Yu-Ting Chou, Tarik Abdelkareem Mostafa Amer, Priya Vijayaraghavan, Sathyadevi Palanisamy, Yun-Ming Wang,* **Tsai-Te Lu*** “Conjugation of Bone Graft with NO-delivery Dinitrosyl Iron Complexes Promotes Synergistic Osteogenesis and Angiogenesis in Rat Calvaria Bone Defects” *J. Mater. Chem. B* **2023**, *11*, 8007-8019. (SCI IF 6.1; ranking 11/53 = 20.8%, Materials Science, Biomaterials)

15. Yu-Ting Tseng, Vladimir Pelmeshnikov,* Linda Iffland-Mühlhaus, Donato Calabrese, Yu-Che Chang, Konstantin Laun, Chih-Wen Pao, Ilya Sergueev, Yoshitaka Yoda, Wen-Feng Liaw, Chien-Hong Chen,* I-Jui Hsu,* Ulf-Peter Apfel,* Giorgio Caserta,* Lars Lauterbach,* **Tsai-Te Lu*** “Substrate-Gated Transformation of a Pre-Catalyst into an Iron-Hydride Intermediate [(NO)₂(CO)Fe(μ-H)Fe(CO)(NO)₂]⁻ for Catalytic Dehydrogenation of Dimethylamine Borane” *Inorg. Chem.* **2023**, *62*, 769-781. (SCI IF 4.3; ranking 8/44 = 18.2%, Chemistry, Inorganic & Nuclear).

16. Wen-Han Chuang, Yu-Ting Chou, Yi-Hong Chen, Ting-Han Kuo, Wen-Feng Liaw, **Tsai-Te Lu**,* Chih-Fei Kao,* Yun-Ming Wang* “Neuroprotective Effect of NO-delivery Dinitrosyl Iron Complexes (DNICs) on Amyloid Pathology in Alzheimer’s

- Disease Cell Model” *ACS Chem. Neurosci.* **2023**, *14*, 2922-2934. (SCI IF 4.1; ranking 96/313 = 30.7%, Biochemistry & Molecular Biology; Ranking 22/72 = 30.6%, Chemistry, Medicinal).
17. Tarik Abdelkareem Mostafa Amer, Sathyadevi Palanisamy, Pamela Berilyn So, Priya Vijayaraghavan, Shey-Cherng Tzou, **Tsai-Te Lu**,* Chia-Her Lin,* Yun-Ming Wang* “Sustained Releasable Copper and Zinc Biogenic ions Co-Assembled in Metal-Organic Frameworks Reinforced Bacterial Eradication and Wound Mitigation in Diabetic Mice” *Bioconjugate Chemistry* **2023**, *34*, 1688-1703. (SCI IF 4.0; ranking 14/85 = 16.5%, Biochemical Research Methods; Ranking 100/313 = 31.9%, Biochemistry & Molecular Biology)
 18. Min-Ren Chiang, Ya-Hui Lin, Wei-Jie Zhao, Hsiu-Ching Liu, Ru-Siou Hsu, Tsu-Chin Chou, **Tsai-Te Lu**, I-Chi Lee, Lun-De Liao, Shih-Hwa Chiou, Li-An Chu,* Shang-Hsiu Hu* “In Situ Forming of Nitric Oxide and Electric Stimulus for Nerve Therapy by Wireless Chargeable Gold Yarn-Dynamos” *Adv. Sci.* **2023**, 2303566. <https://doi.org/10.1002/advs.202303566>. (SCI IF 14.3; ranking 18/230 = 7.8%, Chemistry, Multidisciplinary)
 19. Yi-Chieh Chan, Ya-Hui Lin, Hsiu-Ching Liu, Ru-Siou Hsu, Min-Ren Chiang, Li-Wen Wang, Tsu-Chin Chou, **Tsai-Te Lu**, I-Chi Lee, Li-An Chu,* Shang-Hsiu Hu* “In situ magnetoelectric generation of nitric oxide and electric stimulus for nerve therapy by wireless chargeable molybdenum carbide octahedrons” *Nano Today* **2023**, *51*, 101935. (SCI IF 13.2; ranking 22/230 = 9.6%, Chemistry, Multidisciplinary)
 20. Hsiu-Ching Liu, Chu-Han Huang, Min-Ren Chiang, Ru-Siou Hsu, Tsu-Chin Chou, **Tsai-Te Lu**, I-Chi Lee, Lun-De Liao, Shih-Hwa Chiou, Zhong-Hong Lin, Shang-Hsiu Hu* “Sustained Release of Nitric Oxide-Mediated Angiogenesis and Nerve Repair by Mussel-Inspired Adaptable Microreservoirs for Brain Traumatic Injury Therapy” *Adv. Healthc. Mater.* **2024**, *13*, 2302315. <https://doi.org/10.1002/adhm.202302315>. (SCI IF 10.0; ranking 8/122 = 6.6%, Engineering, Biomedical; ranking 3/53 = 5.7%, Materials Science, Biomaterials)
 21. Cheng-Han Chen, Yu-Hsiang Liao, Michael Muljadi, **Tsai-Te Lu**, Chao-Min Cheng* “Potential Application of the WST-8-mPMS Assay for Rapid Viable Microorganism Detection” *Pathogens* **2023**, *12*, 343. (SCI IF 3.3; ranking 70/161 = 43.5%, Microbiology) (FWCI = 1.06).
 22. Hsi-Chien Huang, Yun-Chieh Sung, Chung-Pin Li, Dehui Wan, Po-Han Chao, Bowen Liao, Hui-Teng Cheng, Fu-Fei Hsu, Chieh-Cheng Huang, Yu-Hui Liao, Hsin

- Tzu Hsieh, Yu-Chuan Shih, I-Ju Liu, Han-Chung Wu, **Tsai-Te Lu,*** Jane Wang,* Yunching Chen* “Reversal of Pancreatic Desmoplasia by a Tumor Stroma-targeted Nitric Oxide Nanogel Overcomes TRAIL Resistance in Pancreatic Tumors” *Gut* **2022**, 71, 1843-1855. (SCI IF 23.0; ranking 5/143 = 3.5%, Gastroenterology & Hepatology).
23. Hsin-Tzu Hsieh, Hsi-Chien Huang, Chieh-Wei Chung, Cheng-Chin Chiang, Tiffany Hsia, Hsin-Fang Wu, Rui-Lin Huang, Chi-Shiun Chiang, Jane Wang, **Tsai-Te Lu,*** Yunching Chen* “CXCR4-targeted nitric oxide nanoparticles deliver PD-L1 siRNA for immunotherapy against glioblastoma” *J. Control. Release* **2022**, 352, 920-930. (SCI IF 10.5; ranking 12/354 = 3.4%, Pharmacology & Pharmacy; ranking 26/230 = 11.3%, Chemistry, Multidisciplinary).
24. Chieh-Wei Chung, Bo-Wen Liao, Shu-Wei Huang, Show-Jen Chiou, Cheng-Han Chang, Sheng-Ju Lin, Bo-Hao Chen, Wei-Ling Liu, Shang-Hsiu Hu, Yu-Chun Chuang, Chia-Her Lin, I-Jui Hsu, Chao-Min Cheng, Chieh-Cheng Huang, **Tsai-Te Lu*** “Magnetic-Responsive Release of Nitric Oxide from a MOF-derived Fe₃O₄@PLGA Microsphere for the Treatment of Bacteria-Infected Cutaneous Wound” *ACS Appl. Mater. Inter.* **2022**, 14, 6343-6357. (SCI IF 8.3; ranking 69/438 = 15.8%, Materials Science, Multidisciplinary; ranking 28/140 = 20%, Nanoscience & Nanotechnology)
25. Yong-Huei Hong, Manmath Narwane, Lawrence Yu-Min Liu, Yi-Da Huang, Yu-Hsiang Chang, Cheng-Ru Wu, Hsi-Chien Huang, I-Jui Hsu, Ling-Yun Cheng, Liang-Yi Wu, Yu-Lun Chueh, Yunching Chen, Chia-Her Lin, **Tsai-Te Lu*** “Enhanced Oral NO Delivery through Bioinorganic Engineering of Acid-sensitive Prodrug into a Transformer-like DNIC@MOF Microrod” *ACS Appl. Mater. Inter.* **2022**, 14, 3849-3863. (SCI IF 8.3; ranking 69/438 = 15.8%, Materials Science, Multidisciplinary; ranking 28/140 = 20%, Nanoscience & Nanotechnology).
26. Ibrahim Habib, **Tsai-Te Lu,*** Amr Sabbah, Kuei-Hsien Chen, Fu-Te Tsai, Wen-Feng Liaw* “One-Pot Photosynthesis of Cubic Fe@Fe₃O₄ Core–Shell Nanoparticle Well-Dispersed in N-Doping Carbonaceous Polymer Using a Molecular Dinitrosyl Iron Precursor” *Inorg. Chem.* **2022**, 61, 20719-20724. (SCI IF 4.3; ranking 8/44 = 18.2%, Chemistry, Inorganic & Nuclear).
27. Chia-Yi Lee, **Tsai-Te Lu,** Yaa-Jyuhn James Meir, Kuan-Jen Chen, Chun-Fu Liu, Chao-Min Cheng, Hung-Chi Chen* “Refractive Changes Following Premature Posterior Capsulotomy Using Neodymium:Yttrium–Aluminum–Garnet Laser” *J. Pers. Med.* **2022**, 12, 272. (SCI IF 3.0; ranking 58/325 = 17.8%, Medicine, General & Internal).

B. Seminar and Conference Presentations

1. Invited Speaker in 6th Symposium on Advanced Biological Inorganic Chemistry (SABIC-2024), India, January 2024.
2. Seminar at Department of Chemistry and Biochemistry, National Chung Cheng University, October 2023.
3. Seminar at College of Engineering, National Tsing Hua University, Taiwan, September 2023.
4. Invited Speaker in 6th Quadrilateral Symposium on Coordination Chemistry, Singapore, August 2023.
5. Seminar at Center for Tissue Engineering, Chang Gung Memorial Hospital, Taiwan, July 2023.
6. Seminar at Precision Medicine Ph.D. Program, National Tsing Hua University, Taiwan, March 2023.
7. Seminar at Department of Bioscience & Biotechnology, National Taiwan Ocean University, Taiwan, March 2023.
8. Award Lecture for Young Investigator Award, Shui-Mu Foundation of Chemistry, Department of Chemistry, National Tsing Hua University, Taiwan, March 2023.
9. Invited Speaker in Annual Meeting of Biomaterials and Controlled Releases Society in Taiwan, Taiwan, September 2022.
10. Invited Speaker in 2022 NSRRC Users' Meeting & Workshops, Taiwan, August 2022.
11. Invited Speaker in 2022 無機錯鹽研討會, Taiwan, August 2022.
12. Invited Speaker in 8th Asian Conference on Coordination Chemistry, Taiwan, August 2022.
13. Seminar at Department of Applied Science, National Taitung University, Taiwan, July 2022.
14. Invited Speaker in The 51st KAST International Symposium, Korea, June 2022.
15. Invited Speaker in 2022 Chemical Society National Meeting, Taiwan, March 2022.
16. Seminar at Department of Chemistry, Soochow University, Taiwan, October 2021.

17. Invited Speaker in The International Chemical Congress of Pacific Basin Societies 2021 (Pacifichem 2021), Honolulu, December 2021.
18. Seminar at Department of Biological Science & Technology, National Chiao Tung University, Taiwan, October 2021.
19. Invited Speaker in International Conference on Precision Nanomedicine in Theranostics & the 2021 Annual Meeting of Taiwan Nanomedicine, Taiwan, October 2021.
20. Invited Speaker in 2021 JBNU International On-Line Symposium, Korea, August 2021.
21. Seminar at Department of Chemistry, National Taiwan Normal University, Taiwan, April 2021.
22. Invited Speaker in Agricultural Trends Forum, Taiwan, April 2021.
23. Invited Speaker in 2021 Chemical Society National Meeting, Taiwan, March 2021.
24. Seminar at Department of Urology, Taipei Veterans General Hospital, Taiwan, January 2021.

C. Patents

1. 魯才德、吳承儒。“用於口服之醫藥組成物以及醫藥組成物用於製備將一氧化氮傳遞至患者的循環系統或大腦之口服藥劑之用途” TWI848230B
2. Tsai-Te Lu, Chieh-Cheng Huang, Han Chiu, Wei-Ping Wang, Rui-Ting Wang, Yi-Chieh Lai. “External Dermal Agent and Use of Dinitrosyl Iron Complex for Preparing External Dermal Agent” US11883517B2.
3. 魯才德、黃玠誠、邱涵、王蔚平、王瑞婷、賴怡倩。”皮膚外用組成物以及雙亞硝基鐵錯合物用於製備美化皮膚的皮膚外用組成物之用途” 中華民國專利 TWI786820B
4. Tsai-Te Lu, Yu-Ting Tseng, Tzu-Chieh Yu, Wen-Feng Liaw. “Pyrazole Metal Complex for Absorbing Carbon Dioxide, Method for Preparing Pyrazole Metal Complex, and Method for Absorption of Carbon Dioxide” US 12179171 B2.
5. 魯才德、曾宇霆、游子韻、廖文峰。”用於吸附二氧化碳之吡唑金屬化合物、其製備方法、及吸附二氧化碳之方法” 中華民國專利TWI785701。

6. Yun-Ching Chen, Tsai-Te Lu, Yun-Chieh Sung “Nanoparticle, Preparation Process and Uses Thereof” US11517588B2.
7. 陳韻晶、魯才德、宋雲傑。“奈米粒子及其製備方法與用途” 中華民國專利 TWI772766B。
8. Tsai-Te Lu, Hsiao-Wen Huang, Chia-Her Lin, Yu-Ting Tseng, Wen-Feng Liaw, Hsi-Ya Huang, Show-Jen Chiou “Dinitrosyl Iron Complex, Pharmaceutical Composition Comprising the Same, Composite Material Comprising the Same, and Uses Thereof” US 10,538,545 B2.
9. 魯才德、黃小紋、林嘉和、曾宇霆、廖文峯、黃悉雅、邱秀貞。” 雙亞硝基鐵錯合物、包含該錯合物之藥學組合物或複合材料及其用途” 中華民國專利TWI666214B。



鄭兆珉 Chao-Min Cheng, Ph.D.

Professor
Institute of Biomedical Engineering
National Tsing Hua University
Hsinchu, Taiwan
Email: chaomin@mx.nthu.edu.tw

Chao-Min Cheng received his Ph. D. in 2009 from Carnegie Mellon University (Biomedical Engineering Department) under the supervision of Prof. Philip R. LeDuc. He then did his post-doctoral training with Prof. George M. Whitesides at Harvard University where he helped develop paper diagnostic systems to address global public health concerns. He is currently an independent P.I. at Taiwan's National Tsing Hua University, where he started in the summer of 2011. He has been blessed to receive the "Outstanding Research Award" and "Ta-You Wu Memorial Award" from Taiwan's National Science and Technology Council. His research has been highlighted in *Scientific American*, *Chemistry World*, the *New York Times*, and the JAMA call-for-idea website (along with a number of other media outlets). His general research interests focus on medical diagnostic devices for public health involving translational medicine, point-of-care diagnosis, cellular and molecular biology, and analytical biochemistry. He has been selected as a Fellow of the Royal Society of Chemistry (U.K.), an Associate Editor for the *Journal of Cellular and Molecular Medicine*, and an Editorial Board Member for *Sensor Letters*, *Diagnostics* and *Scientific Reports*.

Dr. Cheng's longstanding career goal is to bridge engineering with biology and medicine. Following his return to Taiwan, he began collaborations with several medical doctors at different hospitals to develop point-of-care diagnostic devices using inexpensive materials and different approaches. His goal is to create medical diagnostic devices for use in a variety of settings, including home healthcare (to monitor chronic diseases for seniors and pediatric diseases for children), as well as nursing homes and other situations where simplicity, portability, and low-cost are desired. These devices could provide tremendous impact in different economically developed regions, including rural Taiwan, as low-cost methods for detecting diseases and disease states in individuals and populations. Dr. Cheng's ongoing, committed efforts continue to achieve progress in this area and will provide numerous interesting commercial possibilities in economically developed and economically developing nations. While designing experiments for these studies, he and his team adhered to U.S. FDA regulations, especially with respect to *in-vitro* diagnostic device performance evaluations and appropriate data analysis, thus coming closer to achieving his longstanding translational medicine goals. Through strongly integrated approaches, Dr. Cheng ardently pursues the goal of advancing from laboratory-based studies to clinically relevant applications. Such efforts further demonstrate the strength and suitability for these applications to be translated into real-world applications and provide significant benefits to not only academia but pursue the amelioration of real healthcare concerns. In addition to his many academic contributions, Dr. Cheng serves as a consultant for biotechnologically relevant companies around the world with many patent families granted or pending (in Taiwan, China, U.S.).

Publication List

January 2026

1. S.-Y. Sheu, C.-M. Cheng and C.-F. Shen (2026, Jan). Current status and future perspectives of vertical flow assays. *Trends in Biotechnology*, Vol. 44, pp. 40-52. (SCI, 3/177, Biotechnology & Applied Microbiology). 本人為通訊作者.
2. Y.-C. Li, S.-T. Cheng, C.-L. Lien, J.-H. Shiau, C.-F. Shen and C.-M. Cheng (2025, Dec). A novel impedimetric biosensor based on titanium nitride nano- electrode arrays for influenza A H1N1 testing. *Sensors and Actuators Reports*, Vol. 10, pp. 100384 (13 pages). (SCI, 3/79, Instruments & Instrumentation). 本人為通訊作者.
3. C.-H. Chen, Y.-T. Lee, C. Hong, C.-M. Tsai, C.-H. Ko and C.-M. Cheng (2025, Nov). Full-spectrum analysis with machine learning for quantitative assessment of lateral flow immunoassays: a platform approach. *IEEE Transactions on Biomedical Engineering*, DOI: 10.1109/TBME.2025.3636521. (SCI, 38/124, Engineering, Biomedical). 本人為通訊作者.
4. H.-C. Chen, C.-F. Shen, J.-H. Shiau and C.-M. Cheng (2025, Nov). Innovative nano-electrode chip for electroporation in yeast. *Materials Today Advances*, Vol. 28, pp. 100665 (9 pages). (SCI, 85/461, Materials Science, Multidisciplinary). 本人為通訊作者. (highlighted in Sustainable and Construction Review: <https://sustainableconstructionreview.com/2025/11/19/taiwans-nano-chip-breakthrough-boosts-yeast-electroporation-for-biofuels/>).
5. Y.-F. Wu, S.-Y. Sheu, N.-C. Cheng and C.-M. Cheng (2025, Oct). Promising biomarkers for chronic wound healing: a pilot cohort study on wound cytokines and a novel biofilm detection kit for predicting 90-day outcomes. *Wound Repair and Regeneration*, Vol. 33, pp. e70100 (15 pages). (SCI, 41/312, Surgery). 本人為通訊作者.
6. Y.-L. Wang, S.-W. Huang, J.-J. Hong, T. Wang, K.-C. Lee and C.-M. Cheng (2025, Sep). Re-evaluating basophil count as a hematological indicator for bone density: a subgroup analysis from an East Asian population. *Frontiers in Endocrinology*, Vol. 16, pp. 1643760 (12 pages). (SCI, 43/191, Endocrinology & Metabolism). 本人為通訊作者.
7. H.-J. Lu, C.-F. Shen, J.-H. Shiau and C.-M. Cheng (2025, Aug). Microfluidic- based nano-electrode-array dielectrophoretic chip with adjustable electrode spacing for the capture and enrichment of Escherichia coli in deionized water and urine. *Applied Materials Today*, Vol. 45, pp. 102842 (10 pages). (SCI, 104/461, Materials Science, Multidisciplinary). 本人為通訊作者.
8. Y.-N. Chen, Y.-J. Hsueh, C.-K. Chang, P.-Y. Wu, Y.-T. Tsao, Y.-H. Chen, E. Y.-C. Kang, C.-M. Cheng, W.-C. Wu, Y.-S. Hwang and H.-C. Chen (2025, Aug). Analysis

- of total antioxidant capacity and ascorbic acid levels in the aqueous humor of patients with diabetic retinopathy. *Translational Vision Science & Technology*, Vol. 14, pp. 31 (11 pages). (SCI, 27/98, Ophthalmology).
9. I-H. Liao, J.-H. Shiau and C.-M. Cheng (2025, Jul). CMOS-fabricated dielectrophoretic chip with embedded 3D TiN nano-electrode arrays for sperm capture and sperm damage reduction. *Frontiers in Bioengineering and Biotechnology*, Vol. 13, pp. 1635799 (11 pages). (SCI, 31/177, Biotechnology & Applied Microbiology). 本人為通訊作者.
 10. C.-F. Shen, P.-D. Chang, Y.-Y. Chou, S.-W. Wang, Y.-W. Pan, C.-A. Chen, C.-W. Lin, B.-Y. Tsai, P.-J. Tsai, C.-C. Liu, C.-M. Cheng, W.-C. Ko, C.-C. Shieh and Taiwan Pediatric Infectious Disease Alliance (TPIDA) (2025, Jun). BNT162b2 mRNA vaccine elicits robust virus-specific antibodies but poor cross-protective CD8+ memory T cell responses in adolescents with type 1 diabetes. *Journal of Microbiology Immunology and Infection*, Vol. 58, pp. 294-303. (SCI, 35/137, Infectious Diseases).
 11. S.-Y. Sheu, K.-Y. Lee, C.-F. Shen, K. Lin, C.-H. Lin and C.-M. Cheng (2025, Jun). Antibacterial efficacy of nanostructured surfaces. *Applied Materials Today*, Vol. 44, pp. 102717 (8 pages). (SCI, 104/461, Materials Science, Multidisciplinary). 本人為通訊作者.
 12. C.-H. Chen, Y.-T. Lee, C.-F. Shen and C.-M. Cheng (2025, May). Dynamic cytokine monitoring enhances CAP severity scores in elderly patients: a prospective pilot study. *Internal and Emergency Medicine*, <https://doi.org/10.1007/s11739-025-03975-7>. (SCI, 50/332, Medicine, General & Internal). 本人為通訊作者.
 13. I-H. Liao, J.-H. Shiau, K.-R. Chou, C.-L. Lien and C.-M. Cheng (2025, Mar). Innovative CMOS-fabricated dielectrophoretic chip: application of 3D TiN nano-electrode arrays with adjustable electrode spacing in sperm capture. *Frontiers in Bioengineering and Biotechnology*, Vol. 13, pp. 1565743 (12 pages). (SCI, 31/177, Biotechnology & Applied Microbiology). 本人為通訊作者.
 14. C.-H. Chen, W.-T. Liao, C.-M. Cheng, C.-C. Chen, C.-C. Liu and C.-F. Shen (2025, Feb). Urinary interferon- γ -induced protein-10/creatinine ratio as a predictor of severe paediatric infections: a prospective pilot study. *Acta Paediatrica*, Vol. 114, pp. 634-643. (SCI, 61/191, Pediatrics).
 15. C.-Y. Yang, T.-C. Chang, Y.-T. Lee, T.-Y. Shih, C.-W. Li and C.-M. Cheng (2025, Feb). Exploring the interplay between cervicovaginal microbiome, HPV infection, and cervical intraepithelial neoplasia in Taiwanese women. *Journal of Medical Virology*, Vol. 97, pp. e70190 (14 pages). (SCI, 7/42, Virology). 本人為通訊作者.
 16. T.-E. Lin, Y.-H. Lin, Y.-J. Lin, Y.-T. Hsu, Y.-F. Wu, C.-Y. Tsai, P. Subramaniyan and C.-M. Cheng (2025, Feb). Microelectrode and microchannel integrated micro-robotic

- arm for bacteria sensing and on-demand drug delivery. *Sensors and Actuators B-Chemical*, Vol. 425, pp. 136970 (10 pages). (SCI, 2/79, Instruments & Instrumentation).
17. C.-H. Chen, R.-L. Huang, C.-C. Liu, C. Hong, Y. Chen, C.-F. Shen and C.-M. Cheng (2025, Jan). Paper-based procalcitonin and interleukin-6 test strip with spectrum-based optical reader for enterovirus severity differentiation in children. *Clinica Chimica Acta*, Vol. 565, pp. 119942 (8 pages). (SCI, 11/33, Medical Laboratory Technology). 本人為通訊作者.
 18. Y.-L. Wang, H.-Y. Su, C.-M. Cheng and K.-C. Lee (2025, Jan). Evaluation of optimized lumbar oblique x-ray angles with positioning assistance for enhanced imaging quality: a pilot study in an Asian cohort. *Journal of Functional Morphology and Kinesiology*, Vol. 10, pp. 23 (11 pages). (SCI, 43/133, Sport Sciences). 本人為通訊作者.
 19. C.-J. Shen, S.-Y. Hu, C.-P. Hou, C.-F. Shen and C.-M. Cheng (2024, Oct). T cell responses to SARS-CoV-2 in vaccinated pregnant women: a comparative study of pre-pregnancy and during-pregnancy infections. *Vaccines*, Vol. 12, pp. 1208 (12 pages). (SCI, 75/195, Medicine, Research & Experimental). 本人為通訊作者.
 20. H.-J. Lu, I.-H. Liao, C.-L. Lien, J.-H. Shiau, C.-F. Shen, K.-R. Chou and C.-M. Cheng (2024, Oct). Dielectrophoretic capture of Escherichia coli and boar sperms using ULSI-fabricated three-dimensional protruding TiN nano-electrode arrays. *Frontiers in Bioengineering and Biotechnology*, Vol. 12, pp. 1470606 (12 pages). (SCI, 31/177, Biotechnology & Applied Microbiology). 本人為通訊作者.
 21. W.-C. Chen, T.-C. Chang, L. Perera, M.-H. Cheng, J.-J. Hong and C.-M. Cheng (2024, Oct). Pilot study on the impact of HIFU treatment on miRNA profiles in vaginal secretions of uterine fibroids and adenomyosis patients. *International Journal of Hyperthermia*, Vol. 41, pp. 2418426 (14 pages). (SCI, 59/212, Radiology, Nuclear Medicine & Medical Imaging). 本人為通訊作者.
 22. W.-C. Chen, S.-Y. Hu, C.-M. Cheng, C.-F. Shen, H.-Y. Chuang, C.-R. Ker, D.-J. Sun and C.-J. Shen (2024, Sep). Evaluating TRAIL and IP-10 alterations in vaccinated pregnant women after COVID-19 diagnosis and their correlation with neutralizing antibodies. *Frontiers in Immunology*, Vol. 15, pp. 1415561 (13 pages). (SCI, 32/183, Immunology).
 23. V.-T. Vu, C.-A. Vu, C.-J. Huang, C.-M. Cheng, S.-C. Pan and W.-Y. Chen (2024, Aug). Intermittent lysis on a single paper-based device to extract exosomal nucleic acid biomarkers from biological samples for downstream analysis. *Microchimica Acta*, Vol. 191, pp. 501 (12 pages). (SCI, 21/111, Chemistry, Analytical).
 24. Y.-H. Tsai, J.-J. Hong, C.-M. Cheng, M.-H. Cheng, C.-H. Chen, M.-L. Hsieh, K.-S. Hsieh and C.-F. Shen (2024, Aug). Case report: cytokine and miRNA profiling in

- multisystem inflammatory syndrome in children. *Frontiers in Medicine*, Vol. 11, pp. 1422588 (8 pages). (SCI, 61/332, Medicine, General & Internal).
25. C.-J. Shen, Y.-P. Lin, W.-C. Chen, M.-H. Cheng, J.-J. Hong, S.-Y. Hu, C.-F. Shen and C.-M. Cheng (2024, Jun). COVID-19 vaccination in pregnancy: pilot study of plasma microRNAs associated with inflammatory cytokines after COVID-19 mRNA vaccination. *Vaccines*, Vol. 12, pp. 658 (24 pages). (SCI, 75/195, Medicine, Research & Experimental). 本人為通訊作者.
 26. C.-Y. Tsai, C. Hong, M.-Y. Hsu, T.-T. Lai, C.-W. Huang, C.-Y. Lu, W.-L. Chen and C.-M. Cheng (2024, Jun). Fluorescence-based reagent and spectrum-based optical reader for lactoferrin detection in tears: differentiating Sjögren's syndrome from non-Sjögren's dry eye syndrome. *Scientific Reports*, Vol. 14, pp. 14505 (8 pages). (SCI, 25/135, Multidisciplinary Sciences). 本人為通訊作者.
 27. S.-T. Cheng, C.-F. Shen, J.-H. Shiau, K.-R. Chou, W.-Y. Lin, C.-L. Lien and C.-M. Cheng (2024, Jun). Development of an electrochemical biosensor with TiN nano-electrode arrays for IL-6 detection. *Sensors and Actuators Reports*, Vol. 8, pp. 100204 (10 pages). (SCI, 3/79, Instruments & Instrumentation). 本人為通訊作者.
 28. V. K. Nguyen, N. Nguyen, Z.-C. Li, C.-M. Cheng, J.-T. Wang, Y.-W. Chiang, H.-L. Song, S.-K. Lo, C.-H. Mac, Y. Chang, W.-T. Chia and H.-W. Sung (2024, May). Inflammation-activated endogenous macrophage-mediated prodrug delivery system overcoming biological barriers for enhanced oral meningitis therapy. *Advanced Functional Materials*, Vol. 34, pp. 2401570 (17 pages). (SCI, 9/187, Physics, Applied).
 29. S.-C. Pan, Y.-F. Wu, Y.-C. Lin and C.-M. Cheng (2024, Apr). Monocyte chemoattractant protein-1 detection in wound tissue fluids for the assisted diagnosis of wound infection. *Surgery*, Vol. 176, pp. 154-161. (SCI, 64/312, Surgery). 本人為通訊作者.
 30. C.-Y. Yang, T.-C. Chang, H.-H. Chou, A. Chao, S.-T. Hsu, Y.-H. Shih, H.-J. Huang, C.-T. Lin, M.-Y. Chen, L. Sun, K.-G. Huang, K.-Y. Wu, W.-C. Hsieh, Y.-T. Huang, L.-H. Chen, C.-H. Lu, H. Lin and C.-M. Cheng (2024, Mar). Evaluation of a novel vaginal cells self-sampling device for human papillomavirus testing in cervical cancer screening: a clinical trial assessing reliability and acceptability. *Bioengineering & Translational Medicine*, Vol. 9, pp. e10653 (12 pages). (SCI, 25/124, Engineering, Biomedical). 本人為通訊作者.
 31. W.-C. Chen, S.-Y. Hu, C.-M. Cheng, C.-F. Shen, H.-Y. Chuang, C.-R. Ker, D.-J. Sun and C.-J. Shen (2024, Mar). Pilot study on evaluating the impact of tetanus, diphtheria, and pertussis (Tdap), influenza, and COVID-19 vaccinations on antibody responses in pregnant women. *Vaccines*, Vol. 12, pp. 312 (14 pages). (SCI, 75/195, Medicine, Research & Experimental).

32. W.-C. Chen, S.-Y. Hu, C.-M. Cheng, C.-F. Shen, H.-Y. Chuang, C.-R. Ker, D.-J. Sun and C.-J. Shen (2024, Mar). TRAIL and IP-10 dynamics in pregnant women post COVID-19 vaccination: associations with neutralizing antibody potency. *Frontiers in Cellular and Infection Microbiology*, Vol. 14, pp. 1358967 (12 pages). (SCI, 32/163, Microbiology).
33. Y.-T. Tsao, Y.-J. Hsueh, H.-C. Chen and C.-M. Cheng (2024, Mar). Protocol for assessing total antioxidant capacity in minimal volumes of varying clinical human samples. *STAR Protocols*, Vol. 5, pp. 102822 (10 pages). (SCI, 77/86, Biochemical Research Methods). 本人為通訊作者.
34. C.-L. Lee, C.-A. Vu, V.-T. Vu, C.-M. Cheng, Y. Chang and W.-Y. Chen (2024, Feb). Integrating sulfobetaine methacrylate hydrogel-modified cellulose triacetate filter into a zwitterionized tandem membrane system for exosome isolation. *ACS Applied Polymer Materials*, Vol. 6, pp. 2741-2751. (SCI, 23/94, Polymer Science).
35. S.-W. Huang, Y.-F. Wu, T. Ahmed, S.-C. Pan and C.-M. Cheng (2024, Jan). Point-of-care detection devices for wound care and monitoring. *Trends in Biotechnology*, Vol. 42, pp. 74-90. (SCI, 3/177, Biotechnology & Applied Microbiology). 本人為通訊作者.
36. S.-Y. Wu, Y.-C. Hung, C.-C. Chou, C. Chen, C.-M. Cheng, C. Chen, J.-C. Liou and M.-Y. Hsu (2024, Jan). Isolation of three different sizes of exosomes in an Asian population with different retinal diseases before and after treatment: preliminary results. *Bioengineered*, Vol. 15, pp. 2297320 (9 pages). (SCI, 44/174, Biotechnology & Applied Microbiology).
37. W.-C. Chen, S.-Y. Hu, C.-F. Shen, M.-H. Cheng, J.-J. Hong, C.-J. Shen and C.-M. Cheng (2023, Dec). COVID-19 vaccination in pregnancy: pilot study for maternal and neonatal microRNA profiles. *Vaccines*, Vol. 11, pp. 1814 (18 pages). (SCI, 75/195, Medicine, Research & Experimental). 本人為通訊作者. (highlighted as Feature Paper).
38. S.-Y. Wu, Y.-C. Hung, K.-H. Chen, C. Chen, C.-M. Cheng and M.-Y. Hsu (2023, Nov). Detection of carbamates and nitrites with a linear transport unit connected to a paper-based multiplexed colorimetric platform for food safety. *Current Topics in Nutraceutical Research*, Vol. 21, pp. 13 (6 pages). (SCI, 104/114, Nutrition & Dietetics).
39. H.-Y. Hsiao, T.-H. Yen, F.-Y. Wu, C.-M. Cheng, J.-W. Liu, Y.-T. Fan, J.-J. Huang and C.-Y. Nien (2023, Oct). Delivery and transcriptome assessment of an in vitro three-dimensional proximal tubule model established by human kidney 2 cells in clinical gelatin sponges. *International Journal of Molecular Sciences*, Vol. 24, pp. 15547 (20 pages). (SCI, 72/319, Biochemistry & Molecular Biology).
40. Y.-L. Wang, S.-T. Cheng, C.-F. Shen, S.-W. Huang and C.-M. Cheng (2023, Oct).

- Impact of the COVID-19 vaccine booster strategy on vaccine protection: a pilot study of a military hospital in Taiwan. *Clinical and Experimental Vaccine Research*, Vol. 12, pp. 337-345. (SCI, 159/183, Immunology). 本人為通訊作者.
41. P.-C. Huang, T.-Y. Lin, C.-C. Chen, S.-W. Wang, B.-Y. Tsai, P.-J. Tsai, Y.-F. Tu, W.-C. Ko, C.-M. Cheng, C.-C. Shieh, C.-C. Liu, C.-F. Shen and Taiwan Pediatric Infectious Disease Alliance (TPIDA) (2023, Sep). Age and prior vaccination determine the antibody level in children with primary SARS-CoV-2 Omicron infection. *Journal of Microbiology Immunology and Infection*, Vol. 56, pp. 1187- 1197. (SCI, 35/137, Infectious Diseases).
 42. W.-C. Chen, S.-Y. Hu, C.-F. Shen, H.-Y. Chuang, C.-R. Ker, C.-J. Shen and C.-M. Cheng (2023, Aug). COVID-19 bivalent booster in pregnancy: maternal and neonatal antibody response to Omicron BA.5, BQ.1, BF.7 and XBB.1.5 SARS- CoV-2. *Vaccines*, Vol. 11, pp. 1425 (15 pages). (SCI, 75/195, Medicine, Research & Experimental). 本人為通訊作者.
 43. C.-F. Shen, Y.-C. Fu, T.-S. Ho, P.-L. Chen, N.-Y. Lee, B.-Y. Tsai, P.-J. Tsai, W.-C. Ko, C.-C. Liu, C.-M. Cheng and C.-C. Shieh (2023, Jun). Pre-existing humoral immunity and CD4+ T cell response correlate with cross-reactivity against SARS-CoV-2 Omicron subvariants after heterologous prime-boost vaccination. *Clinical Immunology*, Vol. 251, pp. 109342 (7 pages). (SCI, 70/183, Immunology). 本人為通訊作者.
 44. S.-C. Pan, C.-H. Lai, V.-T. Vu, C.-A. Vu, C.-J. Huang, C.-M. Cheng and W.-Y. Chen (2023, Jun). Paper-based exosomal microRNA-21 detection for wound monitoring: a proof of concept and clinical validation trial study. *International Journal of Molecular Sciences*, Vol. 24, pp. 9822 (10 pages). (SCI, 72/319, Biochemistry & Molecular Biology). 本人為通訊作者.
 45. W.-C. Chen, T.-C. Chang, H.-H. Chou, M.-H. Cheng, J.-J. Hong, Y.-S. Hsieh and C.-M. Cheng (2023, Jun). Peritoneal fluid analysis of advanced ovarian cancers after hyperthermic intraperitoneal chemotherapy. *International Journal of Molecular Sciences*, Vol. 24, pp. 9748 (18 pages). (SCI, 72/319, Biochemistry & Molecular Biology). 本人為通訊作者.
 46. W.-P. Hu, Y.-F. Lai, C.-A. Vu, C.-W. Tsao, S.-C. Pan, C.-M. Cheng and W.-Y. Chen (2023, Jun). Paper/PMMA hybrid device with a microvalve-controlled design for exosome isolation and analysis. *Talanta*, Vol. 265, pp. 124851 (8 pages). (SCI, 14/111, Chemistry, Analytical).
 47. Y.-M. Chang, C.-H. Chen, J.-N. Wang, C.-M. Cheng, Y.-F. Tu and C.-F. Shen (2023, Jun). Case report: distinct neurologic manifestation and cytokine profile of a child with COVID-19-associated acute fulminant encephalitis. *Frontiers in Medicine*, Vol. 10, pp. 1209656 (7 pages). (SCI, 61/332, Medicine, General & Internal).

48. C.-H. Chen, Y.-C. Fu, Y.-T. Lee, K.-S. Hsieh, C.-F. Shen and C.-M. Cheng (2023, May). Efficacy of a paper-based interleukin-6 test strip combined with a spectrum-based optical reader for sequential monitoring and early recognition of respiratory failure in elderly pneumonia—a pilot study. *Frontiers in Pharmacology*, Vol. 14, pp. 1166923 (11 pages). (SCI, 51/352, Pharmacology & Pharmacy). 本人為通訊作者.
49. A. K. Paulose, Y.-J. Hou, Y.-S. Huang, N. C. Dileep, C.-L. Chiu, A. Pal, V. M. Kalaimani, Z.-H. Lin, C.-R. Chang, C.-P. Chen, Y.-C. Lin, C.-Y. Cheng, S.-H. Cheng, C.-M. Cheng and Y.-L. Wang (2023, Apr). Rapid *Escherichia coli* cloned DNA detection in serum using an electrical double layer-gated field-effect transistor-based DNA sensor. *Analytical Chemistry*, Vol. 95, pp. 6871-6878. (SCI, 10/111, Chemistry, Analytical).
50. Y.-J. Hsueh, Y.-J. J. Meir, H.-Y. Hsiao, C.-M. Cheng, H.-K. D. Ma, W.-C. Wu and H.-C. Chen (2023, Apr). Transcription factor ATF3 participates in DeltaNp63-mediated proliferation of corneal epithelial cells. *Journal of Personalized Medicine*, Vol. 13, pp. 700 (13 pages). (SCI, 59/329, Medicine, General & Internal).
51. C.-H. Chen, Y.-H. Liao, M. Muljadi, T.-T. Lu and C.-M. Cheng (2023, Feb). Potential application of the WST-8-mPMS assay for rapid viable microorganism detection. *Pathogens*, Vol. 12, pp. 343 (13 pages). (SCI, 74/163, Microbiology). 本人為通訊作者.