

Curriculum Vitae

Yen-Liang Liu, Ph.D., Associate Professor/Director
Master Program of Biomedical Engineering, School of Biomedical Engineering
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Education

University of Texas at Austin	Biomedical Engineering	Ph.D.	2013 - 2018
National Taiwan University	Biomedical Engineering	M.S.	2008 - 2010
National Taiwan University	Life Science	B.S.	2003 - 2008

Current and Previous Academic Positions

MS/PhD Programs of BME, CMU	Director	August 2025 - present
China Medical University	Associate Professor	August 2024 - present
China Medical University	Assistant Professor	June 2019 – July 2024

Other Professional Experience

University of Texas at Austin	Postdoctoral Research Fellow	Oct. 2018 - May 2019
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Honors and Awards

1.	1st place, Young Scholar Oral Competition, Taiwan Nanomedicine Society	2026
2.	The 62nd Ten Outstanding Young Persons of Taiwan (第 62 屆十大傑出青年)	2024
3.	Role Model Teacher Award, R.O.C. Private Education Association (模範教師獎)	2023
4.	Young Investigator Award, 6 th International Symposium of Materials on Regenerative Medicine (ISOMRM)	2023
5.	Excellent Professor Award, China Medical University (傑出教授獎)	2022
6.	Young Scholar Fellowship by Ministry of Science and Technology (\$1.7 million USD)	2019
7.	Young Scholar of North America Taiwanese Professors' Association	2018
8.	3 rd place of power pitch competition, Texas Taiwanese Biotechnology Association	2017
9.	NATEA Travel Award to 2017 Global Technology and Industry Summit Forum in Taiwan	2017
10.	National Science Foundation Travel Award for Taiwan Thematic Meeting	2017
11.	Studying Abroad Scholarship from Ministry of Education, Taiwan (\$32,000 USD)	2016
12.	North America Taiwanese Engineering & Science Association (Dallas-Chapter) Scholarship	2016
13.	1 st place of student poster contest, Science, Engineering & Technology Seminar (SETS)	2016
14.	Biophysical Society Education Committee Travel Award	2016
15.	Carol Lewis Heideman Endowed Presidential Fellowship in Biomedical Engineering	2015
16.	Graduate Student Professional Development Awards, the University of Texas at Austin	2015
17.	Student of 9 th q-bio Summer School and Conference	2015
18.	Minister Award for Educational Civilian Serviceman	2012
19.	2 nd place of poster award, 6 th Taiwan Society for Stem Cell Research Annual Meeting	2010
20.	Best poster award, 18 th Symposium on Recent Advances in Cellular and Molecular Biology	2010

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| 21. Honorable Mention, Crazy Idea – Creativity Competition of Biotechnology Investigation
Sponsored by Industrial Development Bureau, Ministry of Economic Affairs | 2009 |
| 22. Travel Grant, Foundation for the Advancement of Outstanding Scholarship | 2009 |
| 23. Best Poster Award, 4th Kyoto University-National Taiwan University Academic Symposium | 2009 |

Memberships in Professional and Honorary Societies

1. Taiwanese Society of Biomedical Engineering, 2021 - Present
2. Formosa Association Regenerative Medicine, 2021 - Present
3. The Chinese Society of Cell and Molecular Biology, 2020 – Present
4. Chinese Taipei Society for Biomaterials and Controlled Release, 2023 – Present
5. Taiwan Nanomedicine Society, 2023 - Present

Publications

1. Yeh CY, Chiang CY, Chiang CS, Lin MC, Huang CL, Li C, Yen S, Liao LD, Lin WC, Shih JF, Lin FH, Liu HC, **Liu YL***. "An Angiogenic Injectable Granular Porous Scaffold with Sustained VEGF Nanoshell Delivery Enhances Fat Graft Vascularization and Retention." In revision. **Biomaterials**, IF: 13.6, Ranking: 8/130, 94.1%, ENGINEERING, BIOMEDICAL
2. Liao WC, Li HC, Sukhbat U, Shen YH, Hung MC, Tu CY, **Liu YL***. "Deep learning-assisted cytopathological analysis for assessing tumor content of endobronchial ultrasound bronchoscopy-guided lung biopsy," Under review. **Journal of Biomedical Science**, IF: 14.5, Ranking: 17/191, 91.36%, MEDICINE, RESEARCH & EXPERIMENTAL
3. **Liu YL**, Lin YC, Tsai YC, Yen CC, Chiang CY, Hung PJ, Huang YT, Chang CH, Lin FH, Liu HC. "Stage-specific MSC spheroid fusion drives bottom-up formation of multizonal cartilage grafts." **Materials Today Bio**, 2026, IF: 11.0, Ranking: 12/130, 91.2%, ENGINEERING, BIOMEDICAL.
4. Tang S, Tsai YC, Hung PJ, Chiang CY, Shen SY, Lin WC, Shih JF, Lin FH, Liu HC*, **Liu YL***. "Gene-activated porous scaffolds integrating SOX9 mRNA lipid nanoparticles enable uniformly distributed ectopic chondrogenesis in subcutaneous model." **International Journal of Biological Macromolecules**, 2026, IF: 8.7, Ranking: 8/77, 90.3%, CHEMISTRY, APPLIED
5. Lin HY, Liao WC, Lin YC, Li HC, Tsou MY, Cheng BT, Huang YN, Sukhbat U, Chiang CY, Chuang CF, Hsieh ZH, Tu CY, Hung MC, Yeh CK*, **Liu YL***. "Sonofoam: An ultrasound-responsive foam for broad pleural coverage and sonoporation-enhanced drug delivery in pleurodesis." **Chemical Engineering Journal**, 2026, IF: 12.5, Ranking: 4/88, 96%, ENGINEERING, ENVIRONMENTAL
6. Huang YN, Tsou MY, Li PH, Chen JC, Chen SC, Hsieh HI, Meyerowitz-Katz G, **Liu YL***, Su PH*. "Associations of Semaglutide with Skeletal Outcomes in People with Obesity, with and without Type 2 Diabetes: A Target Trial Emulation." **Diabetes, Obesity and Metabolism**, 2026, IF: 6.1, Ranking: 32/198, 84.1%, ENDOCRINOLOGY & METABOLISM
7. Sukhbat U, Batsuuri G, Yamamoto E, Ulziiabaatar O, Turbat T, Oidov B, **Liu YL***, Badarch J*. "Clinical Characteristics, Metastatic Patterns, and Treatment Outcomes of Gestational Choriocarcinoma in Mongolia: A 14-Year Retrospective Study." **Frontiers in Oncology**, 2026, IF: 3.4, Ranking: 148/333, 55.7%, ONCOLOGY
8. Huang YN, TSOU MY, Li PH, Chen JC, **Liu YL**, Meyerowitz-Katz G, Tsai TH, Su PH. "Effectiveness of Pre-Transplant Dual GLP-1 Receptor Agonist and SGLT2 Inhibitor Therapy on All-Cause Mortality in Organ Transplantation Candidates with Obesity and Type 2 Diabetes: a Target-Trial Emulation," **Advanced Science**, 2025, IF: 14.1, Ranking: 46/472, 90.4%, MATERIALS SCIENCE, MULTIDISCIPLINARY
9. Zhuo GY, Chen HW, Liu YS, Yang ZP, Su HC, **Liu YL**, Chan MC. "Passive signal increase with improved signal-to-background ratio in nonlinear light microscopy through time stretching," **Applied Physics Letters**, 2025, IF:3.8, Ranking: 68/191, 64.7%, PHYSICS, APPLIED
10. Chang CC, Lo YS, Chen YP, **Liu YL**, Wang CL. "Sequential drug release of self-ordered titania nanotubes

with antibacterial function and anticancer ability for bone cancer treatments.” *Biomedical Materials*, 2025, IF:3.9, Ranking: 55/130, 58.1%, ENGINEERING, BIOMEDICAL

11. Chen YI, Chang YJ, Liao SC, Nguyen TD, Yang J, Kuo YA, Hong S, Liu YL, Rylander HG, Santacruz SR, Yankeelov TE, Yeh HC. “Generative adversarial network enables rapid and robust fluorescence lifetime image analysis in live cells.” *Communications Biology*, 2022, IF: 5.8, Ranking: 9/106, 92.0%, BIOLOGY
12. Kim M, Hong S, Yankeelov TE, Yeh HC*, Liu YL* “Deep learning-based classification of breast cancer cells using transmembrane receptor.” *Bioinformatics*, 2022, IF:5.5, Ranking:11/85, 87.6%, BIOCHEMICAL RESEARCH METHODS
13. Liu YL, Yen CC, Liu TS, Chang CH, Shih TF, Wang JH, Yang MC, Lin FH, Liu HC “Safety and efficacy of Kartigen® in treating cartilage defects: a randomized, controlled, phase I trial,” *Polymers*, 2021, IF:5.8, Ranking: 18/96, 81.8%, POLYMER SCIENCE
14. Liu HC, Liu TS, Liu YL, Wang JH, Chang CH, Shih TF, Lin FH “Atelocollagen-embedded chondrocyte precursors as a treatment for grade-4 cartilage defects of the femoral condyle: a case series with up to 9-year follow-up” *Biomolecules*, 2021, IF: 5.6, Ranking: 72/328, 78.2%, BIOCHEMISTRY & MOLECULAR BIOLOGY
15. Liu YL and Liu HC. “Regeneration of knee cartilage defects: human clinical trials.” *Journal of Musculoskeletal Research*, 2021.
16. Liu YL*, Perillo EP, Ang PYK, Kim M, Blocher K, Vu H, Chen YA, Dunn AK, Yeh HC*. “Three-dimensional two-color dual-particle tracking microscope for monitoring DNA conformational changes and nanoparticle landings on live cells.” *ACS Nano*, 2020, IF: 17.3, Ranking: 17/250, 93.4%, CHEMISTRY, MULTIDISCIPLINARY
17. Chou CK†, Liu YL† (co-first), Chen YI, Huang PJ, Tsou PH, Chen CT, Lee HH, Wang YN, Hsu JL, Yankeelov TE, Kameoka J, Yeh HC, and Hung MC. “Digital receptor occupancy assay in quantifying on-and off-target binding affinities of therapeutic antibodies.” *ACS Sensors*, 2020, IF: 10.9, Ranking: 5/110, 95.9%, CHEMISTRY, ANALYTICAL
18. Liu YL†, Horning AM†, Lieberman B, Kim M, Lin CK, Hung CN, Chou CW, Wang CM, Lin CL, Kirma NB, Liss MA, Vasisht R, Perillo EP, Blocker K, Horng H, Taverna JA, Ruan J, Yankeelov TE, Dunn AK, Huang HM, Yeh HC, Chen CL. “Spatial EGFR dynamics and metastatic phenotypes modulated by upregulated EPHB2 and SRC pathways predicting poor prognosis.” *Cancers*, 2019, IF: 4.8, Ranking: 92/333, 72.5%, ONCOLOGY
19. Chen YI, Chang YJ, Nguyen TD, Liu C, Phillion S, Kuo YA, Vu HT, Liu A, Liu YL, Hong S, Ren P, Yankeelov TE, Yeh HC. “Measuring DNA hybridization kinetics in live cells using a time-resolved 3D single-molecule tracking method.” *Journal of the American Chemical Society*, 2019, IF: 16.6, Ranking: 19/250, 92.6%, CHEMISTRY, MULTIDISCIPLINARY
20. Nguyen TD, Liu YL, Bi S, Huang SP, Borrego ED, Chen YI, Kuo YA, Yeh HC. “Single-objective multiphoton light-sheet microscopy for tumor organoid screening.” In Multiphoton Microscopy in the Biomedical Sciences XIX 2019 Feb 22 (Vol. 10882, p. 108822P). *International Society for Optics and Photonics*.
21. Liu YL, Chou CK, Kim M, Vasisht R, Kuo YA, Liu C, Perillo EP, Chen YA, Blocher K, Horng H, Chen YI, Nguyen DT, Yankeelov T, Hung MC, Dunn AK, and Yeh HC. “Assessing metastatic potential of breast cancer cells based on EGFR dynamics.” *Scientific Reports*, 2019, IF: 4.9, Ranking: 21/140, 85.4%, MULTIDISCIPLINARY SCIENCES
22. Hassan AM, Wu X, Jarrett JW, Xu S, Yu J, Miller DR, Perillo EP, Liu YL, Chiu DT, Yeh HC, Dunn AK. “Polymer dots enable deep in vivo multiphoton fluorescence imaging of microvasculature.” *Biomedical Optics Express*, 2018, IF: 3.2, Ranking: 51/129, 60.9%, OPTICS
23. Chen YA, Vu H, Liu YL, Chen YI, Nguyen T, Kuo YA, Hong S, Chen YA, Carnahan S, Petty J, Yeh HC. “Improving NanoCluster Beacon performance by blocking the unlabeled NC probes.” *Chemical Communications*, 2018, IF: 4.3, Ranking: 98/250, 61.0%, CHEMISTRY, MULTIDISCIPLINARY
24. Chou CK, Huang PJ, Tsou PH, Wei Y, Lee HH, Wang YN, Liu YL, Shi C, Yeh HC, Kameoka J, and Hung MC.

"A flow-proteometric platform for analyzing protein concentration (FAP): Proof of concept for quantification of PD-L1 protein in cells and tissues." **Biosensors & Bioelectronics**, 2018, IF: 11.8, Ranking: 2/81, 98.1%, BIOPHYSICS

25. Li CW, Lim SO, Chung EM, ..., Liu YL, ..., Hung MC. "Eradication of Triple-Negative Breast Cancer Cells by Targeting Glycosylated PD-L1." **Cancer Cell**, 2018, IF: 56.1, Ranking: 5/333, 98.6%, ONCOLOGY
26. Le V, Lee J, Chaterji S, Spencer A, Liu YL, Kim P, Yeh HC, Kim DH, Baker AB. "Syndecan-1 in mechanosensing of nanotopological cues in engineered materials." **Biomaterials**, 2018, IF: 13.6, Ranking: 8/130, 94.1%, ENGINEERING, BIOMEDICAL
27. Perillo EP, Jarrett JW, Liu YL, Hassan A, Fernée DC, Goldak JR, Bonteanu A, Spence DJ, Yeh HC, Dunn AK. "Two-color multiphoton in vivo imaging with a femtosecond diamond Raman laser." **Light: Science & Applications**, 2017, IF: 24.0, Ranking: 5/129, 96.5%, OPTICS
28. Obliosca JM, Cheng SY, Chen YA, Llanos MF, Liu YL, Imphean DM, Bell DR, Petty JT, Ren P, Yeh HC. "LNA thymidine monomer enables differentiation of the four single-nucleotide variants by melting temperature." **Journal of the American Chemical Society**, 2017, IF: 16.6, Ranking: 19/250, 92.6%, CHEMISTRY, MULTIDISCIPLINARY
29. Liu C, Obliosca JM, Liu YL, Chen YA, Jiang N, Yeh HC. "3D single-molecule tracking enables direct hybridization kinetics measurement in solution." **Nanoscale**, 2017, IF: 5.2, Ranking: 83/250, 67.0%, CHEMISTRY, MULTIDISCIPLINARY
30. Liu YL, Perillo PE, Liu C, Yu P, Chou CK, Hung MC, Dunn AK, Yeh HC. "Segmentation of 3D Trajectories Acquired by TSUNAMI Microscope: An Application to EGFR Trafficking." **Biophysical Journal**, 2016, IF: 3.7, Ranking: 21/81, 74.7%, BIOPHYSICS
31. Liu C, Liu YL, Perillo PE, Dunn AK, Yeh HC. "Single-molecule tracking and its application in biomolecular binding detection." **IEEE J. Sel. Top. Quantum Electron**, 2016, IF: 4.5, Ranking: 32/129, 75.6%, OPTICS.
32. Wang CC, Yang KC, Lin KH, Liu YL, Yang YT, Kuo TF, Chen IH. "Expandable scaffold improves integration of tissue-engineered cartilage: an in vivo study in a rabbit model." **Tissue Engineering Part A**, 2016, IF: 2.8, Ranking: 143/207, 31.2%, CELL BIOLOGY
33. Liu C†, Liu YL†(co-first), Perillo PE, Jiang N, Dunn AK, Yeh HC. "Improving z-tracking accuracy in the two-photon single-particle tracking microscope." **Applied Physics Letters**, 2015, IF: 3.8, Ranking: 68/191, 64.7%, PHYSICS, APPLIED
34. Chen YA, Obliosca JM, Liu YL, Liu C, Gwozdz ML, Yeh HC. "NanoCluster Beacons enable detection of a single N 6-methyladenine." **Journal of the American Chemical Society**, 2015, IF: 16.6, Ranking: 19/250, 92.6%, CHEMISTRY, MULTIDISCIPLINARY
35. Perillo PE, Liu YL, Huynh K, Liu C, Chou CK, Hung MC, Yeh HC, Dunn AK "Deep and high-resolution three-dimensional tracking of single particles using nonlinear and multiplexed illumination." **Nature Communications**, 2015, IF: 18.1, Ranking: 8/140, 94.6%, MULTIDISCIPLINARY SCIENCES
36. Juul S, Obliosca JM, Liu C, Liu YL, Chen YA, Imphean D.M., Knudsen B.R., Ho YP, Leong KW, Yeh HC. "NanoCluster Beacons as reporter probes in rolling circle enhanced enzyme activity detection." **Nanoscale**, 2015, IF: 5.2, Ranking: 83/250, 67.0%, CHEMISTRY, MULTIDISCIPLINARY
37. Perillo PE, Liu YL, Liu C, Yeh HC, Dunn AK. "Single particle tracking through highly scattering media with multiplexed two-photon excitation." **SPIE BiOS**, 2015.
38. Obliosca JM, Babin M, Liu C, Liu YL, Chen YA, Batson R, Ganguly M, Petty J, Yeh HC. "A complementary palette of NanoCluster Beacons." **ACS Nano**, 2014, IF: 17.3, Ranking: 17/250, 93.4%, CHEMISTRY, MULTIDISCIPLINARY
39. Wang CC, Yang KC, Lin KH, Wu CC, Liu YL, Lin FH, Chen IH. "A biomimetic honeycomb-like scaffold prepared by flow-focusing technology for cartilage regeneration." **Biotechnology and Bioengineering**, 2014, IF: 3.9, Ranking: 75/180, 58.6%, BIOTECHNOLOGY & APPLIED MICROBIOLOGY
40. Ling TY, Liu YL, Huang YK, Gu SY, Chen HK, Ho CC, Tsao PN, Tung YC, Chen HW, Cheng CH, Lin KH, Lin FH. "Differentiation of lung stem/progenitor cells into alveolar pneumocytes and induction of angiogenesis

within a 3D gelatin–microbubble scaffold.” *Biomaterials*, 2014, IF: 13.6, Ranking: 8/130, 94.1%, ENGINEERING, BIOMEDICAL

41. Wang CC, Yang KC, Lin KH, **Liu YL**, Liu HC, Lin FH. “Cartilage regeneration in SCID mice using a highly organized three-dimensional alginate scaffold.” *Biomaterials*, 2012, IF: 13.6, Ranking: 8/130, 94.1%, ENGINEERING, BIOMEDICAL

Book Chapters

1. **Liu YL**. “Single-Molecule and Single-Particle Tracking and Analysis in a Living Cell.” In: Santra T.S., Tseng FG. (eds) *Single Biomolecule Detection and Analysis: Concepts, Applications, and Future Prospects*. CRC Press, p179-p202, 2023.
2. Kim M., **Liu YL**. “Transmembrane Receptor Dynamics as Biophysical Markers for Assessing Cancer Cells.” In: Santra T.S., Tseng FG. (eds) *Handbook of Single Cell Technologies*. Springer, 2021.

Patents

1. **Yen-Liang Liu**, Wei-Chih Liao, Chih-Yen Tu, Feng-Ju Weng. “SYSTEM AND METHOD FOR CLASSIFYING A MEDICAL IMAGE, AND COMPUTER READING MEDIUM THEREOF.” PCT/US2024/057942, Submitted date: 2024/11/29.
2. **劉彥良**, 廖偉志, 涂智彥, 翁鳳如. “SYSTEM AND METHOD FOR CLASSIFYING A MEDICAL IMAGE, AND COMPUTER READING MEDIUM THEREOF.” 中華民國發明專利申請, 案號: 113146359, Submitted date: 2024/12/02.
3. **Yen-Liang Liu**, Shao-Chun Wang, Yu-Ting Huang, Ya-Han Shen, Chun-Yi Chiang, Yen-Chi Tsao, “FLUID FORMULATION AND METHOD FOR INTRACAVITARY OR TOPICAL THERAPY.” US provisional 63/535,579, Submitted date: 2023/08/31.
4. **Yen-Liang Liu**, Hsin-Chin Li, Wei-Chih Liao, Chih-Yen Tu, “METHOD, SYSTEM, AND COMPUTER READABLE MEDIUM FOR DETECTING CANCER.” US provisional 63/538,289, Submitted date: 2023/09/14.
5. Yeh HC, Obliosca JM, Chen YA, Liu C, **Liu YL**. “Metal nanocluster beacons for detection of epigenetic modifications.” US Patent 10,407,715, 2019.
6. Lin KH, Mishra N, **Liu YL**, Wang CC. “Scaffolds and other cell-growth structures using microfluidics to culture biological samples.” US Patent 9,957,481, 2018.
7. Lin KH, Mishra N, **Liu YL**, Wang CC. “Method for fabricating foam scaffolds to culture cells.” US Patent 8,513,014 B2, 2013

Conference Presentations

1. **Liu YL**, Oral presentation, “Sonofoam: Ultrasound-enhanced drug delivery in pleurodesis and intracavitary chemotherapy” Annual Meeting of Taiwan Nanomedicine Society, Hsinchu, Taiwan, July 17, 2026
2. **Liu YL**, Oral presentation, “Deep learning-assisted cytopathological analysis for assessing tumor content of endobronchial ultrasound bronchoscopy-guided lung biopsy” Symposium on Engineering, Medicine, and Biology Applications (SEMBA), Taipei, Taiwan, January 9, 2026
3. **Liu YL**, Invited Session Speaker, “Sonofoam: An Ultrasound-Responsive Foam for Broad Pleural Coverage and Sonoporation-Enhanced Drug Delivery in Pleurodesis” Annual Symposium of Taiwanese Society of Biomedical Engineering, Hualien, Taiwan, Nov. 8, 2025
4. **Liu YL**, Invited Speaker, “AI 輔助分析於癌症診斷” 關鍵疾病防治技術與法制政策趨勢研討會, Taipei, Taiwan, September 8, 2025
5. **Liu YL**, Invited Session Speaker, “Ultrasound-enhanced pleurodesis and AI-assisted cytopathology for lung cancer” 7th ISOMRM & BCRS, Taoyuan City, Taiwan, August 7, 2025

6. **Liu YL**, Invited Session Speaker, "Development of ultrasound-assisted pleurodesis and investigation of pleural fibrosis" 40th Biology Retreat, Nanto, Taiwan, June 26, 2025
7. **Liu YL**, Invited Session Speaker, "Development of foam-based anti-cancer therapies" 3rd Kyoto University and China Medical University Joint Symposium, Kyoto, Japan, June 21, 2025
8. **Liu YL**, Invited talk, "Angiogenic, Injectable, Granular, Porous Scaffold for Fat Transplantation," Annual Meeting of Formosa Association for Regenerative Medicine, Taipei, Taiwan, March 29, 2025
9. **Liu YL**, Invited Session Speaker, "Deep learning-assisted cytopathological analysis for assessing tumor content of endobronchial ultrasound bronchoscopy-guided lung biopsy" 16th IEEE NANOMED, Okinawa, Japan, December 7, 2023
10. **Liu YL**, Invited Session Speaker, "Deep learning-assisted cytopathological analysis for assessing tumor content of endobronchial ultrasound bronchoscopy-guided lung biopsy" 3rd International Conference on Advanced Biomedical Sciences (ICABS), Taiwan, December 1, 2023
11. **Liu YL**, ISOMRM Young Investigator "Immunofoam: foam-based immunotherapy for metastatic peritoneal cancer." 6th ISOMRM & BCRS, New Taipei City, Taiwan, September 2, 2023
12. **Liu YL**, Invited Session Speaker, International Conference on Precision Nanomedicine in Theranostics & The 2023 Annual Meeting of Taiwan Nanomedicine Society, Taichung City, Taiwan, July 21, 2023
13. **Liu YL**, Invited Session Speaker, "Calcium carbonate-encapsulated STING agonist for anti-cancer immune therapy." Annual Meeting of Biomaterials and Controlled Release Society in Taiwan, Hsinchu City, Taiwan, Sep. 2, 2022
14. **Liu YL**, Invited Session Speaker, "Assessing metastatic potential and classifying cancer cells using deep learning-based EGFR trajectory analysis." The 17th IEEE International Conference on Nano/Micro Engineered & Molecular Systems, Virtual Conference, April 14, 2022
15. **Liu YL**, Invited Keynote Speaker, "MSC-derived cartilage grafts in treating cartilage defects: two clinical trials with 2- & 9-year follow-up." Annual Meeting of Taiwanese Society of Biomedical Engineering, Taichung City, Taiwan, Nov. 20, 2021
16. **Liu YL**, Invited Session Speaker, "Applications of single-particle tracking in visualizing EGFR trafficking and assessing the metastatic potential of cancer cells." International Conference on Advanced Biomedical Sciences, Taichung City, Taiwan, Nov. 19, 2021
17. **Liu YL**, Invited Session Speaker, "Applications of single-particle tracking in visualizing EGFR trafficking and assessing the metastatic potential of cancer cells." Global Conference on Biomedical Engineering, Taipei, Taiwan, Nov. 13, 2020
18. **Liu YL**, Invited Plenary Speaker, "Deep learning classifies breast cancer cells by EGFR trajectory." Virtual IEEE NEMS, Sep. 30, 2020
19. **Liu YL**, Invited Plenary Speaker, "Applications of single-particle tracking in visualizing EGFR trafficking and assessing the metastatic potential of cancer cells." Frontiers in Translational Biomedical Sciences, National Cheng Kung University, Taiwan, Aug. 21, 2020
20. Chou CK†, **Liu YL**† (co-first), Huang PJ, Tsou PH, Chen CT, Lee HH, Wang YN, Hsu JL, Lee JF, Chen TI, Yankeelov TE, Kameoka J, Yeh HC, and Hung MC. "Digital receptor occupancy assay in quantifying on- and off-target binding affinities of therapeutic antibodies." Biomedical Engineering Society Annual Meeting, Philadelphia, USA, poster presentation, Oct. 2019
21. **Liu YL**, Chou CK, Horning AM, Kim M, Vasisht R, Lieberman B, Kuo YA, Ang P, Liu C, Perillo EP, Chen YA, Blocher K, Horng H, Chen YI, Nguyen DT, Yankeelov TE, Dunn AK, Hung MC, Chen CL, and Yeh HC. "Assessing metastatic potential of cancer cells based on transmembrane receptor dynamics." Biomedical Engineering Society Annual Meeting, Philadelphia, USA, poster presentation, Oct. 2019
22. **Liu YL**, Chou CK, Kim M, Vasisht R, Ang P, Liu C, Perillo EP, Chen YA, Blocher K, Horng H, Yankeelov TE, Hung MC, Dunn AK, Yeh T. "Assessing metastatic potential of breast cancer cells based on EGFR dynamics." Gordon Research Conference, Physical Science of Cancer, Galveston, TX, USA, poster presentation, Feb. 2019
23. **Liu YL**, Chou CK, Kim M, Vasisht R, Liu C, Perillo EP, Horng H, Hung MC, Dunn AK, Yeh T. "Effect of

Epithelial-Mesenchymal Transition on EGFR Dynamics Revealed by Single-Particle Tracking." Biophysical Society 62nd Annual Meeting, San Francisco, CA, USA, poster presentation, 2018.

24. **Liu YL.** "Learn from BioClusters in the U.S. – Strategies for Taiwan's Rising Biotech Industry." 38th Annual Conference of North America Taiwanese Professors' Association, Washington, D.C., USA, oral presentation, 2018.
25. **Liu YL**, Horning AM, Perillo EP, Liu C, Kim M, Vasisht R, Dunn AK, Chen CL, Yeh HC. "An integrated circulating tumor cell capture and analysis platform for early diagnosis of metastatic prostate cancer." *2017 Global Technology and Industry Summit Forum*, Kaohsiung City, Taiwan, oral presentation, 2017
26. **Liu YL**, Horning AM, Perillo EP, Liu C, Kim M, Vasisht R, Horng H, Dunn AK, Chen CL, Yeh HC. "Effect of epithelial-mesenchymal transition on the dynamics of EGFRs of prostate cancer cells revealed by TSUNAMI 3D tracking microscope." *Single-Cell Biophysics: Measurement, Modulation, and Modeling*, Taipei City, Taiwan, poster presentation, 2017.
27. **Liu YL**, Horning AM, Perillo EP, Liu C, Kim M, Vasisht R, Horng H, Dunn AK, Chen CL, Yeh HC. "Development of biophysical markers that quantify metastatic potentials of prostate cancer cells using TSUNAMI microscope." *Biophysical Society 61st Annual Meeting*, New Orleans, LA, USA, poster presentation, 2017.
28. **Liu YL**, Horning AM, Perillo EP, Liu C, Kim M, Vasisht R, Horng H, Dunn AK, Chen CL, Yeh HC. "Development of biophysical markers that quantify metastatic potentials of prostate cancer cells using TSUNAMI microscope." *Quantitative Biolmaging Conference*, College Station, TX, USA, poster presentation, 2017.
29. **Liu YL.** "Membrane Receptor Trajectory: A New Biophysical Marker for Cancer Diagnosis" 2016 Annual Conference of the North America Taiwanese Engineering & Science Association (NATEA)-Dallas Chapter, Dallas, TX, USA, oral presentation, 2016.
30. **Liu YL**, Perillo PE, Liu C, Yu P, Chou CK, Hung MC, Dunn AK, Yeh HC. "Dynamics of EGFR trafficking from membrane into deep cytoplasm revealed by a spatiotemporally multiplexed 3D tracking microscope." *Biophysical Society 60th Annual Meeting*, Los Angeles, CA, USA, poster presentation, 2016.
31. **Liu YL**, Perillo PE, Liu C, Yu P, Chou CK, Hung MC, Dunn AK, Yeh HC. "Dynamics of EGFR trafficking from the membrane into deep cytoplasm revealed by a spatiotemporally multiplexed 3D tracking microscope." *Science, Engineering & Technology Seminar*, Houston, TX, USA, oral and poster presentations, 2016. (1st Place)
32. Perillo PE, **Liu YL**, Liu C, Dunn AK, Yeh HC. "Deep and high-resolution three-dimensional tracking of single particles using nonlinear and multiplexed illumination." *NanoEngineering for Medicine and Biology Conference*, Houston, TX, USA, oral presentation, 2016.
33. Chen YA, Oblisca JM, **Liu YL**, Liu C, Gwozdz ML, Yeh HC. "NanoCluster Beacons enable enzyme-free N6-methyladenine detection." *NanoEngineering for Medicine and Biology Conference*, Houston, TX, USA, oral presentation, 2016.
34. **Liu YL**, Perillo E, Liu C, Chen YA, Hung MC, Dunn AK, Yeh HC. "Multicolor three-dimensional tracking of single epidermal growth factor receptors." *Biomedical Engineering Society Annual Meeting*, San Antonio, TX, USA, oral presentation, 2014.
35. **Liu YL.** "Deep and high-resolution 3D tracking of EGFR trafficking by TSUNAMI microscope", Invited Talk for Optics and Graduate Organization, Austin, Texas, USA, 2014.
36. **Liu YL**, Huang YK, Ho CC, Cheng CH, Kuo CY, Huang CH, Lin KH, Lin FH, Ling TY. "Lung stem/progenitor cells stimulate angiogenesis in the three-dimensional scaffold." *8th Taiwan Society for Stem Cell Research (TSSCR) Annual Meeting*, Kaohsiung, Taiwan, poster presentation, 2012.
37. **Liu YL**, Huang YK, Lin FH, Lin KH, Ling TY. "Stem cells application in lung tissue engineering." *The Symposium of Formosa Association Regenerative Medicine*, Taipei, Taiwan, oral presentation, 2010.
38. **Liu YL**, Lin KH, Lin FH, Huang YK, Ling TY. "The application of pulmonary stem/progenitor cells for lung tissue engineering." *6th Taiwan Society for Stem Cell Research (TSSCR) Annual Meeting*, Taichung,

Taiwan, poster & oral presentation, 2010. (2nd place)

39. **Liu YL**, Cheng CH, Lin FH, Huang YK, Lin SY, Lin KH, Ling TY. "The application of monodisperse gelatin-microbubble scaffold and mouse pulmonary stem/progenitor cells for lung tissue engineering. 18th Symposium on Recent Advances in Cellular and Molecular Biology, Kenting, Taiwan, poster presentation, 2010. (Best poster award)
40. **Liu YL**, Lin FH, Lin KH, Huang YK, Ling TY. "The application of monodispersed gelatin-microbubble scaffold and mouse pulmonary stem/progenitor cells for lung tissue engineering." *7th International Society of Stem Cell Research (ISSCR) Annual Meeting*, Barcelona, Spain, poster presentation, 2009.
41. **Liu YL**, Lin FH, Lin KH, Huang YK, Ling TY. "The application of alginate scaffold and mouse pulmonary stem/progenitor cells for lung tissue engineering." *4th Kyoto University-National Taiwan University Symposium in Molecular and Cellular Biology*, Kyoto, Japan, poster, 2008. (Best poster award)

Invited Talks

Scientific talks

1. 2025/04/16, Invited Seminar "Development of foam-based anti-cancer therapies," Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Taiwan
2. 2025/04/16, Invited Seminar "Development of foam-based anti-cancer therapies," Institute of Biomedical Engineering, National Tsing Hua University, Taiwan
3. 2024/10/23, Invited Seminar, "MSC Therapy for Repairing Cartilage Defect," Department of Medical Laboratory and Biotechnology, Chung Shan Medical University, Taiwan
4. 2024/09/08, Invited talk, Innovative Biomedical Technology Training Course, National Health Research Institute, Taiwan
5. 2024/03/13, Invited Seminar, "Cell Therapy for Cartilage," Department of Life Sciences, National University of Kaohsiung, Taiwan
6. 2024/07/19, Invited talk, "Foam technology for immunotherapy," Yeh group, Department of Biomedical Engineering, University of Texas at Austin, USA
7. 2023/12/07, Invited Seminar, "Applications of single-particle tracking in visualizing EGFR trafficking and assessing the metastatic potential of cancer cells," Membrane Cooperativity Unit, Okinawa Institute of Science and Technology, Japan
8. 2023/12/06, Invited Seminar, "Cancer diagnosis and therapy: Deep learning-assisted cytopathology and foam-based immunotherapy for intraperitoneal metastasis," Membrane Cooperativity Unit, Okinawa Institute of Science and Technology, Japan
9. 2023/06/02, Invited Departmental Seminar, Department of Materials Science and Engineering, National Tsing Hua University, Taiwan
10. 2023/04/19, Invited speech, "Current New Innovation in Cervical Cancer Diagnosis and Treatment," Mongolia-Taiwan Joint Seminar, Webinar, Mongolia
11. 2023/04/14, Invited speech, "Applications of single-particle tracking in visualizing EGFR trafficking and assessing the metastatic potential of cancer cells," Modern Biomedicine Microscopic Imaging Symposium, Academia Sinica, Taiwan
12. 2023/03/09, Invited Departmental Seminar, Institute of Physiology, National Yang Ming Chiao Tung University, Taiwan
13. 2023/03/05, Invited speech, "The Cutting Edge Cancer Research, Drug Development, Stem Cell Treatment & Tissue Engineering," EduCare Taiwan, Webinar, India
14. 2022/12/16, Invited speech, "Applications of Single-particle Tracking in Visualizing EGFR Trafficking,"

Texas Taiwanese Biotechnology Association, Webinar, Texas

15. 2022/10/21, Invited speech, "Applications of Flow Cytometry in Cancer Research," CytoFLEX Flow Cytometry Forum, Taipei, Taiwan
16. 2022/09/29, Invited speech, Department and Graduate Institute of Pharmacology, National Taiwan University, Taiwan
17. 2022/09/14, Invited speech, "Cell Therapy for Cartilage," Center for Cell Therapy and Regeneration Medicine, Taipei Medical University, Taiwan
18. 2022/04/01, Invited speech, Lecture on Modern Biomedicine, China Medical University, Taiwan
19. 2022/03/31, Invited Departmental Seminar, Ph.D. Program in Tissue Engineering and Regenerative Medicine, National Chung Hsing University, Taiwan
20. 2021/12/17, Invited Departmental Seminar, Department of Biotechnology, National Taiwan University, Taiwan
21. 2021/10/08, Invited Departmental Seminar, Department of Life Science, National Taiwan University, Taiwan
22. 2021/05/05, Invited Departmental Seminar, Department of Biomedical Engineering & Environmental Sciences, National Tsing Hua University, Taiwan
23. 2020/11/26, Invited Departmental Seminar, Institute of Electro-Optical Science and Technology, National Taiwan Normal University, Taiwan
24. 2020/09/25, Invited Departmental Seminar, Frontier of Science, Institute of Biotechnology, National Taiwan University, Taiwan
25. 2020/06/11, Invited Departmental Seminar, Department of Materials Science and Engineering, National Cheng Kung University, Taiwan
26. 2020/04/20, Invited Departmental Seminar, Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University, Taiwan
27. 2020/01/03, Invited Departmental Seminar, Graduate Institute of Precision Engineering, National Chung Hsing University, Taiwan
28. 2019/12/24, Invited Departmental Seminar, Department of Biomedical Sciences and Engineering, National Central University, Taiwan
29. 2019/11/07, Invited Departmental Seminar, Houston Methodist Research Institute, Houston, USA

Talks on career development

30. 2021/06/26, Invited Speaker, "Opportunity and Challenge of Biomedical Scientist Returning to Home Country." Taipei Economic and Cultural Office in Houston, Houston, USA
31. 2021/03/06, Invited Speaker, "Workshop for Study Abroad", Information Center on Study Abroad, Taipei Public Library, Taiwan
32. 2020/12/05, Invited Speaker, "Workshop for study abroad", Taiwan Global Professional & Scholar Networking, Ministry of Education, Taiwan
33. 2020/11/07, Invited Panelist, "Ace into academia faculty position." 2020 Virtual Annual Meeting of Texas Taiwanese Biotechnology Association at Texas, Texas, USA
34. 2020/08/25, Invited Panelist, "Panel discussion: MOST Young Scholar Programs." The 36th Biology Retreat, Taiwan
35. 2020/08/22, Invited Speaker, "Experience sharing about a postdoc associate." The Investigator Taiwan, Taiwan

36. 2020/03/24, Invited Speaker, “勇闖天涯翻轉人生,” Lishan High School, Taipei, Taiwan
37. 2020/02/17, Invited Speaker for a book launch, “勇闖天涯翻轉人生”, Commonwealth Publishing Co.
38. 2019/12/20, Invited Panelist, Panel discussion entitled “Global Talk in Biotechs,” 2019 Biogroup Symposium, Taipei, Taiwan
39. 2019/09/08, Invited Panelist, Panel discussion entitled “Begin your next career phase in Taiwan,” 2019 Annual Meeting of Midwest Taiwanese Biotechnology Symposium, Chicago, USA

Grants

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| 1. | General Research Project, National Science and Technology Council, Taiwan, PI
“Injectable Angiogenic Scaffolds Enable CRISPR-SAM-Driven In Vivo Brown Adipocyte Generation for Metabolic Therapy,” 3-years grant, \$5.1 million NTD funded. | 2026/08/01-
2029/07/31 |
| 2. | Teaching Practice Research Program, Ministry of Education, Taiwan, PI
AI-enhanced problem-based and project-based learning for transforming biomedical smart manufacturing education in nanomedicine, stem cells, and tissue engineering,” \$ 0.45 million NTD | 2026/08/01-
2027/07/31 |
| 3. | Nanotechnology Innovation Grant, National Science and Technology Council, Taiwan, PI
“Ultrasound-assisted mRNA cocktail immunotherapy to solid tumor using sonoporation and microstreaming for enhancing drug penetration and lymphatic drainage,” \$ 4.2 million NTD funded. | 2024/08/01-
2026/07/31 |
| 4. | Career Development Grant, National Health Research Institutes, PI
“Immunofoam: an innovation for intracavitary combination therapy to solid tumors using biomaterials-assisted immunotherapy and sonoporation-enhanced drug penetration,” \$ 6.84 million NTD funded. | 2023/01/01-
2026/12/31 |
| 5. | Young Scholar Grant, Ministry of Science and Technology, Taiwan, PI
“Lung Cancer Organoid-based High-Content Screening Platform for Evaluation and Prediction of Tumor Response to Treatment using Machine Vision and Deep Learning”, \$ 39.2 million USD funded. | 2019/11/01-
2025/07/31 |
| 6. | Yingtsai Young Scholar Award, China Medical University, \$ 30 million NTD funded | 2019/08/01-
2024/07/31 |

Editor

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| 1. | Special Issue Editor, International Journal of Molecular Sciences
Special Issue “Bioimaging for Advanced Explorations in Materials and Life Science” | 2022-2023 |
| 2. | Special Issue Editor, Frontiers in Physics
Special Issue “Biophotonics for cancer diagnostics and treatment” | 2021-2022 |