



台灣放射腫瘤學會

Taiwan Society for Therapeutic Radiology and Oncology



台灣放射腫瘤學會 藥物治療委員會年度研討會

萬芳醫院 30周年院慶系列活動

放射腫瘤學新視野： 藥物治療與 精準醫學國際研討會

學分認列：

放射腫瘤學分

(其餘申請中學分：

倫理學分

台灣放射腫瘤學會學分

台灣癌症安寧緩和醫學會學分

中華民國癌症醫學會學分

台灣臨床腫瘤醫學會學分

台灣肺癌學會學分

台灣乳房醫學會學分)

8.22^六

8:30 — 17:00

📍 萬芳醫院 五樓500會議室

主辦單位 |



台灣放射腫瘤學會

Taiwan Society for Therapeutic Radiology and Oncology



臺北市立萬芳醫院 - 委託臺北醫學大學辦理

Taipei Municipal Wan Fang Hospital (Organized by Taipei Medical University)

協辦單位 |



北醫質子中心

TMU PROTON CENTER

放射腫瘤學新視野： 藥物治療與精準醫學國際研討會

8.22^六
8:30 — 17:00

8:00-8:30 報到入場

8:30-8:45 開幕、院長/理事長致詞、合影

癌症免疫治療與藥物治療

8:45-9:15 再生雙法時代的抗癌細胞治療

 台中榮總
血腫科 **曾慧恩** 科主任

9:15-9:45 口服抗癌藥物與節拍式化療

 三總
血腫科 **黃子權** 醫師

———— 9:45-10:15 中場休息 ————

藥物與放療合併的實務展望

10:15-10:45 Integrated photonics and its applications
for cancer diagnostics (同步線上演講)

 ECE Department,
UT Austin **陳瑞會 Ray Chen** 博士

10:45-11:15 Engineering a multilayered 3D stromal
barrier model for quantitative analysis of
T cell infiltration and cytotoxicity

 癌研有明醫院
消化道化療科 **筱崎英司** 副部長  成育醫療中心
神經腫瘤科 **寺島慶太** 診療部長

11:15-11:45 人工智慧加速抗癌藥物研發的北醫經驗：
以激酶家族為例

 北醫癌症生物
與藥物研發所 **許凱程** 博士

放射腫瘤學新視野： 藥物治療與精準醫學國際研討會

8.22^六
8:30 — 17:00

—— 12:00-13:00 Lunch Symposium ——

12:00-12:30 從放射腫瘤學解鎖IL12的多重宇宙：
癌症治療增敏與急性輻射傷害保護

 北醫附醫
放腫科 **呂隆昇** 醫師 (麗寶新藥贊助)

12:30-13:00 腫瘤液態切片：
從數據庫到臨床指引的Guardant經驗

 北醫附醫
放腫科 **呂隆昇** 醫師 (威健生技贊助)

抗癌治療中正常器官保護的藥物策略

13:30-14:00 免疫治療相關副作用的認知與處置

 三總
血腫科 **戴明榮** 科主任

14:00-14:30 放射治療中的神經保護策略

 北醫附醫
神經科 **李薰華** 醫師

14:30-15:00 放射治療中的腸胃道保護策略

 高長
放腫科 **黃英彥** 醫師

放射腫瘤學新視野： 藥物治療與精準醫學國際研討會

8.22^六
8:30 — 17:00

———— 15:00-15:20 下午休息 ————

基因體與癌症精準醫學

15:20-15:50 回顧臨床實用的基因診斷工具

 馬偕醫院
生物科技醫學部 **陳冀寬** 醫師

15:50-16:20 簡介液態切片技術

 北醫附醫
研究部 **林永豐** 博士

16:20-16:50 精準醫學趨勢下醫療性基因檢測同意書
重要條款的倫理法律分析 (非同步線上演講)

 北醫
醫法所 **何建志** 博士

呂隆昇 Long-Sheng Lu M.D. PhD

Current Appointment

Associate Professor,
Graduate Institute of Biomedical Materials and Tissue Engineering,
International Ph.D. Program in Biomedical Engineering,
International Ph.D. Program for Cell Therapy and Regeneration Medicine,
Deputy Director,
TMU Research Center for Cancer Translational Medicine,
Deputy Director,
Precision Health Research Center,
Taipei Medical University
Attending Physician,
Department of Radiation Oncology,
Taipei Medical University Hospital, Taipei, Taiwan
Chief Medical Officer,
Cancerfree Biotech, Dover, Delaware, USA



Address: No. 252, Wuxing St, Xinyi District, Taipei, Taiwan

Email: lsu@tmu.edu.tw

Biography:

Lu is interested in translational radiation oncology and personalized cancer medicine. With clinical specialty in breast and gastrointestinal cancers, his research is aiming at cardiopulmonary protection during cancer therapy, radiation-assisted immunotherapy and personalized cancer medicine. Moreover, he initiated and sat in the molecular tumor board of TMU (2018-) and developed microfluidic circulating tumor cell technologies for personalized cancer medicine. He has published 66 original papers, 2 book chapters and holds 6 patents (licensed to Cancerfree and Bosomeer). He received Taiwanese academic and innovative entrepreneurship awards including Junior Faculty Career Development Award from Taiwan Society for Therapeutic and Radiation Oncology (2018), National Innovation Award (2019, 2020, 2021) and FITI Entrepreneurship Award (2017, 2018) from Taiwanese Ministry of Science and Technology.

Education and Employment

EDUCATION

INSTITUTION AND LOCATION	DEGREE	DURATION	FIELD OF STUDY
Institute of Pharmacology/ National Taiwan University, Taiwan	Ph.D.	2000~2007	Cardiovascular Pharmacology
Department of Medicine/ National Taiwan University, Taiwan	M.D.	1994~2000	Medicine

EMPLOYMENT (Include postdoctoral training)

INSTITUTION AND LOCATION	POSITION TITLE	DURATION	FIELD OF STUDY
Cancerfree Biotech Ltd. Taipei Branch, Taipei, Taiwan	Chief Medical Office (joint)	2024~now	Development and application of circulating

	appointment)		tumor cell derived organoids
TMU Research Center for Cancer Translational Medicine/Taipei Medical University	Deputy Director	2023~now	Cancer translational research
Precision Medicine Research Center/Taipei Medical University Hospital, Taipei, Taiwan	Member	2024~now	Precision medicine clinical practice
Center for Cell Therapy/Taipei Medical University Hospital, Taipei, Taiwan	Director	2022~2024	Clinical and investigational cell therapy
Center for Cancer Research Excellence/Taipei Medical University Hospital	Deputy Director	2021~2023	Application of organoid technology
Department of Radiation Oncology/Taipei Medical University Hospital	Attending Physician	2017~ now	Radiation oncology
Graduate Institute of Biomaterials and Tissue Engineering/Taipei Medical University	Associate Professor	2022~now	Biomedical materials and tissue engineering
Graduate Institute of Biomaterials and Tissue Engineering/Taipei Medical University	Assistant Professor	2015~ 2022	Biomedical materials and tissue engineering
International Ph.D. Program in Biomedical Engineering, College of Biomedical Engineering/Taipei Medical University	Joint appointment faculty	2018~now	Biomedical materials and tissue engineering
International Ph.D. Program for Cell Therapy and Regeneration Medicine, College of Medicine/Taipei Medical University	Joint appointment faculty	2018~now	Clinical application of circulating tumor cells and derived technology
Department of General Medicine and Radiation Oncology/Taipei Medical University Hospital	Resident	2012~2017	Radiation oncology
Texas Heart Institute/Dept. of Cardiology/MD Anderson Cancer Center, Houston Texas USA	Postdoctoral fellow	2007~2012	Molecular and cellular cardiology, Cardio-oncology, mitochondrial biology

Professional Societies and Services

1. Taiwan society for therapeutic radiology and oncology
Chairperson and board member, Systemic therapy committee
Appointed member, Board certification committee
Member
2. American society for therapeutic radiation oncology
Member
3. European society for radiotherapy & oncology
Member
4. Taiwan society of engineering technology and practical medicine
Board member, Public relationship committee
Member
5. Taiwanese society of biomedical engineering
Member
6. Asia-Pacific Biomedical Device Association
Board member, Medical liaison committee
Member

Honors and awards

1. Tzu-Chi medical scholarship (1999)
2. NHRI predoctoral fellowship for MD/DDS (2001-2004)

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3. Taiwan merit scholarship (2007-2009)
 4. Junior Faculty Career Development Award, TASTRO (2018)
 5. FITI Entrepreneurship Award (2017, 2018)
 6. National innovation award (2019, 2020, 2021, 2022, 2023)

List of Published Work

1. Journal articles
1. Sun CW, Lu LS, Yang CC, Kiang YW, Su MJ: Myocardial tissue characterization based on the time-resolved stokes-mueller formalism. *Optics Express* 2002;10:1347-1353.
2. Liu YB, Wu CC, Lu LS, Su MJ, Lin CW, Lin SF, Chen LS, Fishbein MC, Chen PS, Lee YT: Sympathetic nerve sprouting, electrical remodeling, and increased vulnerability to ventricular fibrillation in hypercholesterolemic rabbits. *Circ Res* 2003;92:1145-1152.
3. Lin LC, Wu CC, Yeh HI, Lu LS, Liu YB, Lin SF, Lee YT: Downregulated myocardial connexin 43 and suppressed contractility in rabbits subjected to a cholesterol-enriched diet. *Lab Invest* 2005;85:1224-1237.
4. Lu LS, Liu YB, Sun CW, Lin LC, Su MJ, Wu CC: Optical mapping of myocardial reactive oxygen species production throughout the reperfusion of global ischemia. *J Biomed Opt* 2006;11:021012.
5. Sun CW, Wang YM, Lu LS, Lu CW, Hsu IJ, Tsai MT, Yang CC, Kiang YW, Wu CC: Myocardial tissue characterization based on a polarization-sensitive optical coherence tomography system with an ultrashort pulsed laser. *J Biomed Opt* 2006;11:054016.
6. Lu LS, Wu CC, Hung LM, Chiang MT, Lin CT, Lin CW, Su MJ: Apocynin alleviated hepatic oxidative burden and reduced liver injury in hypercholesterolaemia. *Liver Int* 2007;27:529-537.
7. Deng JY, Huang JP, Lu LS, Hung LM: Impairment of cardiac insulin signaling and myocardial contractile performance in high-cholesterol/fructose-fed rats. *Am J Physiol Heart Circ Physiol* 2007;293:H978-987.
8. Lu LS, Hung LM, Liao CH, Wu CC, Su MJ: Effects of rosiglitazone on native low-density-lipoprotein-induced respiratory burst in circulating monocytes and on the leukocyte-endothelial interaction in cholesterol-fed rats. *Naunyn Schmiedebergs Arch Pharmacol* 2007;375:251-260.
9. Wu CC, Wang YM, Lu LS, Sun CW, Lu CW, Tsai MT, Yang CC: Tissue birefringence of hypercholesterolemic rat liver measured with polarization-sensitive optical coherence tomography. *J Biomed Opt* 2007;12:064022.
10. Wu CC, Hong BF, Wu BH, Yang SY, Horng HE, Yang HC, Tseng WYI, Tseng WK, Liu YB, Lin LC, Lu LS, Lee YH: Animal magnetocardiography using superconducting quantum interference device gradiometers assisted with magnetic nanoparticle injection: A sensitive method for early detecting electromagnetic changes induced by hypercholesterolemia. *Applied Physics Letters* 2007;90:054111.
11. Deng JY, Hsieh PS, Huang JP, Lu LS, Hung LM: Activation of estrogen receptor is crucial for resveratrol-stimulating muscular glucose uptake via both insulin-dependent and -independent pathways. *Diabetes* 2008;57:1814-1823.
12. Wu CC, Liu YB, Lu LS, Lin CW: Imaging reactive oxygen species dynamics in living cells and tissues *Frontiers in Bioscience (scholar edition)* 2009;s1:39-44
13. Dou H, Huang C, Nguyen TV, Lu LS, Yeh ETH: SUMOylation and de-SUMOylation in response to DNA damage. *FEBS Lett* 2011;585:2891-2896.

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14. Nguyen TV, Angkasekwinai P, Lu LS, Lin FM, Dou H, Cheng J, Chin YE, Dong C, Yeh ETH: SUMO-Specific Protease 1 Is Critical for Early Lymphoid Development through Regulation of STAT5. *Mol Cell* 2012;45:210-21.
 15. Bawa-Khalfe T, Lu LS, Zuo Y, Huang C, Yeh ET: Differential expression of SUMO-specific protease 7 variants regulates epithelial-mesenchymal transition. *Proc Natl Acad Sci U S A*. 2012;109:17466-71.
 16. Zhang S, Liu X, Bawa-Khalfe T, Lu LS, Lyu YL, Liu LF, Yeh ET: Identification of the molecular basis of doxorubicin-induced cardiotoxicity. *Nat Med*. 2012;18:1639-42.
 17. Chu CS, Wang YC, Lu LS, Walton B, Yilmaz HR, Huang RY, Sawamura T, Dixon RA, Lai WT, Chen CH, Lu J: Electronegative low-density lipoprotein increases C-reactive protein expression in vascular endothelial cells through the LOX-1 receptor. *PLoS One* 2013;8(8):e70553
 18. Lu LS, Pan CH, Lin YH, Lai HY, Tai CJ, Hsu CY, Chiou JF, Ting LL: Salvage Concurrent Chemoradiation Therapy Stabilizes Progression of Recurrent Intimal Sarcoma of the Left Atrium: A Case Report. *Therapeutic Radiology and Oncology* 2016;23:265-270
 19. Wang YC*, Lee AS*, Lu LS*, Ke LY, Chen WY, Dong JW, Lu J, Chen Z, Chu CS, Chan HC, Kuzan TY, Tsai MH, Hsu WL, Dixon RAF, Sawamura T, Chang KC, Chen CH. Human electronegative LDL induces mitochondrial dysfunction and premature senescence of vascular cells in vivo. *Aging Cell*. 2018 Aug;17(4):e12792. doi:10.1111/ace1.12792.
 20. Burnoff T, Burnouf PA, Wu YW, Chuang EY, Lu LS, Goubran HA: Circulatory cells-mediated nanotherapeutic approaches in disease targeting. *Drug Discovery Today* 2018 May;23(5):934-943.
 21. Lu LS, Chen YJ, Lin YT, Lee JT, Chiou JF: Ionizing radiation-induced cancer stemness gene expression is regulated by matrix nanotopography. *Therapeutic Radiology and Oncology* 2018;25(1):1-11
 22. Wu CJ, Tsai YT, Lee IJ, Wu PY, Lu LS, Tsao WS, Huang YJ, Chang CC, Ka SM, Tao MH. Combination of radiation and interleukin 12 eradicates large orthotopic hepatocellular carcinoma through immunomodulation of tumor microenvironment. *Oncoimmunology*. 2018 Jul 23;7(9):e1477459.
 23. Chen YJ, Kuo CC, Ting LL, Lu LS, Lu YC, Cheng AJ, Lin YT, Chen CH, Tsai JT, Chiou JF: Piperlongumine inhibits cancer stem cell properties and regulates multiple malignant phenotypes in oral cancer. *Oncology Letters* 2018 Feb;15(2):1789-1798
 24. Wang WJ, Lee KD, Chen WY, Chiou JF, Lu LS: Combining hypofractionated radiation therapy with immunotherapy for anorectal malignant melanoma: a case report. *Therapeutic Radiology and Oncology* 2019;3:1 doi: 10.21037/tro.2018.12.09.
 25. Chu HY*, Lu LS*, Cho W, Wu SY, Chang YC, Lin CP, Yang CY, Lin CH, Jiang JK, Tseng FG: Enumerating circulating tumor cells with self-assembled cell array (SACA) chip: a feasibility study in patients with colorectal cancer. *Cancers (Basel)*. 2019 Jan 8;11(1). pii: E56. doi: 10.3390/cancers11010056.
 26. Huang CF, Colley MMS, Lu LS, Chang CY, Peng PW, Yang TS: Performance characterization of continuous-wave laser-induced forward transfer of liquid bioink. *Applied Physics Express*, 2019 12(11):116504.
 27. Lin CH, Lee HH, Kuei CH, Lin HY, Lu LS, Lee FP, Chang J, Wang JY, Hsu KC, Lin YF. Nicotinic Acetylcholine Receptor Subunit Alpha-5 Promotes Radioresistance via Recruiting

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- E2F Activity in Oral Squamous Cell Carcinoma. *J Clin Med*. 2019 Sep 12;8(9). pii: E1454. PubMed Central PMCID: PMC6780171.
28. Lee HH, Lin CH, Lin HY, Kuei CH, Zheng JQ, Wang YH, Lu LS, Lee FP, Hu CJ, Wu D, Lin YF. Histone 2A Family Member J Drives Mesenchymal Transition and Temozolomide Resistance in Glioblastoma Multiforme. *Cancers (Basel)*. 2019 Dec 30;12(1). pii: E98. doi: 10.3390/cancers12010098.
 29. Wu YW, Huang CC, Changou CA, Lu LS, Goubran H, Burnouf TH: Clinical-grade cryopreserved doxorubicin-loaded platelets: role of cancer cells and platelets extracellular vesicles activation loop. *J Biomed Sci* 2020 Mar 23;27(1)45. Doi: 10.1186/s12929-020-00633-2. PMID 32200762
 30. Goudar VS, Yeh PH, Wu SY, Chu CH, Lu LS, Yang CH, Chiou TJ, Tseng FG: Live Circulating Tumour Cells Selection on Digitized Self-Assembled Cell Array (Digi-SACA) Chip by In-Parallel/ In-Situ Image Analysis, Cell Capture and Cultivation. *Sensors & Actuators: B. Chemical* 2020 Aug 1;316:128002. doi.org/10.1016/j.snb.2020.128002
 31. Liu CS, Cheng CJ, Liu YR, Yeh SD, Jeng SC, Lu LS*, Chiou JF*: Complete Response After Radiation-Assisted Immunotherapy For Metastatic Urothelial Carcinoma: A Case Report and Literature Review. *Therapeutic Radiology and Oncology* 2020 (accepted 2020 Aug 18)
 32. Chu HY, Chen YJ, Hsu CJ, Liu YW, Chiou JF, Lu LS *, Tseng FG*: Physical Cues in the Microenvironment Regulate Stemness-Dependent Homing of Breast Cancer Cells. *Cancers (Basel)*. 2020 Aug 5;12(8). E2176. doi: 10.3390/cancers12082176.
 33. Kuei CH, Lin HY, Lin MH, Lee HH, Lin CH, Lee WJ, Chen YL, Lu LS, Zheng JQ, Hung RC, Chiu HW, Chen KC, Lin YF. DNA polymerase theta repression enhances the docetaxel responsiveness in metastatic castration-resistant prostate cancer. *BBA - Molecular Basis of Disease* 2020 2020 Dec 1;1866(12):165954. doi: 10.1016/j.bbadis.2020.165954. Epub 2020 Aug 30.
 34. Lin CH, Lee HH, Lee FP, Chen LC, Lu LS, Lin YF. FOXD1 repression potentiates radiation effectiveness by downregulating G3BP2 expression and promoting the activation of TXNIP-related pathways in oral cancer. *Cancers (Basel)*. 2020 Sep 16;12(9), E2690. Doi:10.3390/cancers12092690
 35. Lu KY, Jheng PR, Lu LS, Rethi L, Mi F, Chuang EY. Enhanced anticancer effect of ROS-boosted photothermal therapy by using fucoidan-coated polypyrrole nanoparticles. *Int J Biol Macromol*. 2020 Oct 20; (20)34724-3. doi: 10.1016/j.ijbiomac.2020.10.091.
 36. Lee HL, Chiou JF, Wang PY, Lu LS, Shen CN, Hsu HL, Burnouf T, Ting LL, Chou PC, Chung CL, Lee KL, Shiah HS, Liu YL, Chen YJ: Ex Vivo Expansion and Drug Sensitivity Profiling of Circulating Tumor Cells from Patients with Small Cell Lung Cancer. *Cancers (Basel)*. 2020 Nov 12;12(11), E3394. Doi:10.3390/cancers12113394
 37. Chen YJ, You GR, Lai MY, Lu LS, Chen CY, Ting LL, Lee HL, Kanno Y, Chiou JF, Cheng AJ: A Combined Systemic Strategy for Overcoming Cisplatin Resistance in Head and Neck Cancer: From Target Identification to Drug Discovery. *Cancers (Basel)*. 2020 Nov 21;12(11), E3482. Doi:10.3390/cancers12113482
 38. Liu CS, Tsai JR, Kao YT, Lu LS, Chen YJ, Burnouf T, Wang PY, Chiou JF, Ting LL: Chemoradiotherapy for Inoperable Carotid Body Leiomyosarcoma: A case Report and Review of Literature. *Frontiers in Oncology* 2021 Feb 11;10:599403. doi: 10.3389/fonc.2020.599403.

39. Wang WJ, Lee KD, Lu LS, Chiou JF, Ting LL, Treating leptomeningeal metastases from primary hepatic neuroendocrine carcinoma with combined radiotherapy and immunotherapy: a case report. *Therapeutic Radiology and Oncology* 2021;5:5 doi: 10.21037/tro-19-103
40. Hsiao YC, Jheng PR, Nguyen HT, Chen YH, Manga YB, Lu LS, Rethi L, Chen CH, Huang TW, Lin JD, Chang TK, Ho YC, Chuang EY. Photothermal-Irradiated Polyetherimide-Polypyrrole Nano-Pigments Film-Coated Polyethylene Fabrics for Infrared-Inspired with Pathogenic Evaluation. *ACS Applied Materials & Interfaces*. 2021 Jan 20;13(2):2483-2495. doi: 10.1021/acsami.0c17169.
41. Kuo SP, Chang HC, Lu LS, Liu DZ, Wang TJ, Activation of Keap1/Nrf2/ARE Pathway by Curcumin Enhanced the Anti-oxidative Capacity of Corneal Endothelial Cells. *Biomedicine & Pharmacotherapy* 2021 Jun 141:111834. doi: 10.1016/j.biopha.2021.111834
42. Li TJ, Lin TW, Wu SP, Chu HT, Kuo YH, Chiou JF, Lu LS*, Chen CC*, Safety, Stability and Patient-Derived Tumor Chemosensitization of GKB202, An Antrodia Cinnamomea Mycelium-Derived Bioactive Compound. *Molecules* 2021 Oct 4;26(19):6018.
43. Goudar VS, Koduri MP, Ngoc Ta YN, Chen YC, Chu LA, Lu LS*, Tseng FG*, The Impact of Desmoplastic Tumor Microenvironment for Colon Cancer Drug Sensitivity: A Study with 3D Chimeric Tumor Spheroids. *ACS Applied Materials & Interfaces*. 2021 Oct 20;13(41):48478-48491.
44. Wong PC, Wang RY, Lu LS, Wang WR, Jang JSC, Wu JL, Su TY, Chang LH, Two-step approach to inhibit surface biofilm and kill subsequent planktonic bacteria. *Biomedicines* 2021 Nov 12;9(11):1677.
45. Yang TY, Kuo PY, Huang Y, Lin HW, Malwade S, Lu LS, Tsai LW, Shabbir SA*, Sun CW* and Chiou JF*. Deep-Learning Approach to Predict Survival Outcomes using Wearable Actigraphy among End-Stage Cancer Patients. *Frontiers in Public Health* 2021 Dec 9;9:730150.
46. Lin KC, Ting LL, Chang CL, Lu LS, Lee HL, Hsu FC, Chiou JF, Wang PY, Burnouf T, Ho DCY, Yang KC, Chen CY, Chen CH, Wu CZ, Chen YJ, Ex Vivo Expanded Circulating Tumor Cells for Clinical Anti-Cancer Drug Prediction in Patients with Head and Neck Cancer, *Cancers (Basel)*. 2021 Dec 2;13(23):6076
47. Lu LS*, Wu YW*, Chang JT, Chang WT, Chao TH, Chen HH, Chen YJ, Cheng KH, Sheung PW, Hsu WL, Hung CL, Kuo SH, Liang CA, Lin HJ, Liu PY, Liu WS, Liu YW, Wang CY, Ho CJ, Chiou JF, TASTRO-TSOC Cardio-oncology Task Force, Risk Management for Radiation Induced Cardiovascular Disease (RICVD): The 2021 Taiwan Society for Therapeutic Radiology and Oncology (TASTRO) and Taiwan Society of Cardiology (TSOC) Consensus, *Acta Cardiol Sin*. 2022 Jan;38(1):1-12.
48. Hsu FC, Chen YJ, Shen YA, Tsai YC, Wu MH, Kuo CC, Lu LS, Yeh SD, Huang WS, Lee HL, Shen CN, Chiou JF, A Few-Shots Learning Approach Assists Prognosis Prediction of Magnetic Resonance-guided Focused Ultrasound for Bone Metastatic Lesions Local Control. *Cancers (Basel)* 2022 Jan 17;14(2):445.
49. Enkhbat M, Zhong B, Chang R, Geng J, Lu LS, Chen YJ, Harnessing the in vitro anoikis of A549 non-small cell lung cancer (NSCLC) using chemical drugs and colloidal self-assembled patterns (cSAPs). *ACS Appl Bio Mater*. 2022 Jan 17;5(1):322-333
50. Wu YH, Hung YP, Chiu NC, Lee RC, Li CP, Chao Y, Shyr YM, Wang SE, Chen SC, Lin SH, Chen YH, Kang YM, Hsu SM, Yen SH, Wu JY, Lee KD, Tseng HE, Tsai JR, Tang RH, Chiou JF, Burnouf T, Wang PY, Chen YJ, Lu LS, Correlation Between Drug Sensitivity Profiles of Ex

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- Vivo Expanded Circulating Tumor Cells and Clinical Treatment Response in Pancreatic Ductal Adenocarcinoma Patients, *Eu J Cancer*, 2022 May;166:208-218.
51. Gbetuwa M, Lu LS, Wang TJ, Chen YJ, Chiou JF, Su TY, Yang TS, Nucleus near-infrared (nNIR) irradiation of single A549 cells induces DNA damage and activates EGFR leading to mitochondrial fission. *Cells*, 2022 Feb 11;11(4):624.
 52. Pan LC, Hang NL, Colley MMS, Chang J, Hsiao YC, Lu LS, Li BS, Chang CJ, Yang TS, Single Cell Effects of Photobiomodulation on Mitochondrial Membrane Potential and Reactive Oxygen Species Production in Human Adipose Mesenchymal Stem Cells. *Cells*, 2022 Mar 11;11(6):972. doi: 10.3390/cells11060972.
 53. Burnouf T, Jheng PR, Chen YH, Rethi L, Rethi L, Lu LS, Ho YC, Chuang EY, Near-infrared-driven photoablation of lung cancer tumors utilizing biomimetic platelet-polyethyleneimine-polypyrrole drug-free nanoparticles. *Materials & Design*, 2022 Mar 215:110481. doi.org/10.1016/j.matdes.2022.110481.
 54. Chen CP, Lin CY, Lin HY, Kuo CC, Chen TH, Lin SC, Tseng KH, Cheng HW, Chao HL, Yen SH, Lin RY, Feng CJ, Lu LS*, Chiou JF*, Hsu SM*, Skin Surface Dose for Whole Breast Radiotherapy Using Personalized Breast Holder: Comparison with Various Radiotherapy Techniques, *Cancers*, 2022 May (accepted)
 55. Chen CP, Chen YJ, Chiou JF, Kuo CC, Chen TH, Tseng KH, Chung MY, Chen CY, Wu JY, Lu LS*, Hsu SM*, Retrospective analysis for dose reduction to organs at risk with new personalized breast holder (PERSBRA) in left-sided whole-breast radiation therapy. *J Pers Med*, 2022 Aug (accepted)
 56. Rethi L, Mutalik C, Anurogo D, Lu LS, Chu HY, Kuo TR, Cheng TM. Insights on Lipid-Based Nanoparticles Conjugation and Drug Delivery Systems in Breast Cancer Therapy. *Nanomaterials*, 2022 Aug; 12 (17):2948.
 57. Rethi L, Chinmaya M, Rethi L, Chiang WH, Lee HL, Pan WY, Yang TS, Chen YJ, Chiou JF, Chuang EY*, Lu LS*, Molecularly Targeted Photothermal Ablation of Epidermal Growth Factor Expressing Cancer Cells with a Polypyrrole-Iron Oxide-Afatinib Nanocomposite, *Cancers*, 2022 Oct; 14(20), 5043; <https://doi.org/10.3390/cancers14205043>
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List of Current Grant Support

科技部計畫

1. Project Co-PI: 2020/08/01-2021/07/31 科技部一般研究計畫 NTD 1,100,000 元

乳癌細胞 $\alpha 9$ 尼古丁受體作為新穎靶向 RNA 奈米藥物與 T 細胞療法之臨床轉譯研究 - 探討 $\alpha 9$ 尼古丁受體基因表現在乳癌病人血液循環腫瘤細胞/游離 DNA 於乳癌治療的應用(1/3)(109-2320-B-038-025-)

Project Co-PI: 2020/08/01-2021/07/31 科技部一般研究計畫 NTD 1,100,000 元

以循環腫瘤細胞預測肝癌治療反應及其機制探討(109-2314-B-038-122-)

Project PI: 2020/08/01-2021/07/31 科技部新進人員研究計畫 NTD 1,270,000 元

以循環腫瘤細胞模式探討軟組織肉瘤的藥物治療策略(2/2)(109-2314-B-038-141-)

Project Co-PI: 2020/08/01-2021/07/31 科技部一般研究計畫 NTD 1,210,000 元

以體外循環腫瘤細胞擴增系統發展兒童神經腫瘤精準醫療策略(109-2314-B-038-072-)

Project Co-PI: 2020/08/01-2021/07/31 科技部鼓勵女性從事科學及技術研究專案計畫 NTD 950,000 元

以體外擴增循環腫瘤細胞系統預測腫瘤治療反應(109-2635-B-038-001-)

Project Co-PI: 2020/08/01-2021/07/31 科技部一般研究計畫 NTD 1,076,000 元

電火花放電法製備奈米合金膠體最佳製程參數與其應用之研究(109-2221-E-027-063-)

Project Co-PI: 2020/06/01-2021/05/31 科技部產學合作研究計畫 NTD 2,730,000 元

以體外擴增循環腫瘤細胞系統預測腫瘤治療反應(1/2)(109-2622-E-038-003-CC1)

Project Co-PI: 2019/08/01-2022/07/31 科技部雙邊協議型擴充加值(add-on)國際合作研究計畫 NTD 3,635,000 元

智能人類血小板顆粒結合多功能聚合物載體做為新型治療的生物醫學平台(108-2221-E-038-017-MY3)

Project Co-PI: 2019/01/01-2021/12/31 科技部一般研究計畫 NTD 4,600,000 元

開發功能性感溫水膠於腫瘤血管正常化與合併放射及免疫共治療上之應用(108-2923-E-011-005-MY3)

產學合作計畫

Project PI: 2020/07/01-2021/06/31 和鑫生技開發股份有限公司 NTD 176,470 元

重原子藥物對 NanoRay 與醫用直線加速器射束性質的影響研究計畫

Project PI: 2020/06/01-2021/05/31 精拓生技股份有限公司 NTD 1,941,454 元

產學合作計畫 - 以體外擴增循環腫瘤細胞系統預測腫瘤治療反應(1/2)

從放射腫瘤學解鎖 IL-12 的多重宇宙：癌症治療增敏與急性輻射傷害

呂隆昇

臺北醫學大學附設醫院放射腫瘤科

自 1980 年代 IL-2 獲得藥證用於治療腎癌與黑色素瘤起，介白素即開啟癌症免疫治療先河。介白素在抗癌舞台上便奠定不可或缺的地位。其中，IL-12 更是橋接先天與調適性免疫的關鍵樞紐，被視為扭轉腫瘤微環境抑制狀態、協同放化療的強效利器。近年轉譯醫學研究更發現，IL-12 在輻射生物學中展現出超越傳統認知的多重角色。

本次演講將簡介 IL-12 的雙重臨床應用潛力。前半段聚焦於腫瘤免疫增敏，回顧 IL-12 在血液與實體癌的指標性臨床試驗，並探討放療聯合 IL-12 誘發局部及遠隔效應的前瞻機轉；後半段則開闢新視野，針對急性輻射症候群 (ARS) 的臨床處置瓶頸，評估 IL-12 於造血系統防護與抗輻射傷害的創新應用。期盼透過此演講，不僅增進臨床醫師對放療免疫協同效應的理解，更希望能鼓勵放射腫瘤科醫師攜手合作，推進新一代免疫調控藥物的轉譯研究與臨床試驗開發。