

Shu-Chen Liu

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EDUCATION

- Ph.D. 2009**, Institute of Life Science (Academia Sinica/National Defense Medical Center/National Health Research Institutes Joint PhD Program, Taiwan)
- **M.S 2000**, Radiological Sciences, National Yang-Ming University, Taiwan

RESEARCH/CLINICAL EXPERIENCES

- Associate Professor:** 2022/8-present (Department of Biomedical Sciences and Engineering, National Central University, Taiwan).
- Assistant Professor:** 2020/2-2022/7 (Department of Biomedical Sciences and Engineering, National Central University, Taiwan).
- Assistant Professor (contract):** 2016/2-2020/1 (Department of Biomedical Sciences and Engineering, National Central University, Taiwan).
- Assistant Research Scholar:** 2015/8-2018/7 (Ministry of Science and Technology, Taiwan).
- Postdoctoral Research Fellow:** 2009-2015 (Molecular Medicine Research Center, Chang Gung University, Taiwan).
- Ph.D Program:** 2001-2009 (National Health Research Institutes, Taiwan).
- Medical Technologist/dosimetrist:** 1990-2000 (Department of radiation oncology, Hualien Tzu Chi Medical Center/Chi Mei Medical Center).

RESEARCH INTERESTS

- Head and Neck Cancer Tumor Microenvironment
- Immuno-Oncology
- Epstein-Barr Virus-Associated Carcinogenesis
- Radiation Oncology
- Single-cell Omics

PROFESSIONAL MEMBERSHIPS

- Taiwan Society for Therapeutic Radiology and Oncology
- The Taiwan Oncology Society

APPLIED RESEARCH

Valid patents:

- Potentiation of Nasopharyngeal Cancer Radiotherapy by Inhibitors of Leukemia Inhibitory Factor (US9 , 194,872 B2; duration of patent right: 2015/11 ~2034/04) ◦
- Method for Predicting Cancer to Be Diagnosed with Recurrence or Remission After Radiotherapy and Its Related Application (China, CN 104623663 A; duration of patent right: 2017 /7/14~2034/1/26)
- Sensitizer for Cancer Radiotherapy (Taiwan , I486172 , duration of patent right: 2015/06~2033/11) ◦

2020 Bio Asia-Taiwan exhibition: The potentialities of a spontaneously immortalized oral cancer cell line (NCU-OC1) in the translational medicine.

HONORS:

- (2023) Outstanding Research Award, National Central University, Taiwan.
- (2022) Outstanding Paper Award, the First Place. The Veterans General Hospitals and University System of Taiwan Joint Research.
- (2021) Outstanding Research Award, National Central University, Taiwan.
- (2021) The 25th Taiwan Joint Cancer Conference Award.
- (2021) Poster Award, the Second Place, the Veterans General Hospitals and University System of Taiwan Joint Research.
- (2021) New Faculty Outstanding Research Award, National Central University, Taiwan.
- (2020) New Faculty Outstanding Research Award, National Central University, Taiwan.
- (2017) The 22nd Taiwan Joint Cancer Conference Award.
- (2014) Awards of The Cancer Prevention & Treatment Foundation, Taiwan
- (2014) The 19th Taiwan Joint Cancer Conference Award
- (2011) NHRI Outstanding Paper Award, National Health Research Institutes, Taiwan)
- (2009) Awarded for excellent thesis in 2009 NHRI Research Day.

RESEARCH PROJECTS

(Principal Investigator)

1. Leukemia inhibitory factor-mediated immune modulation in oral squamous cell carcinomas (MOST, 2020/08/01~2023/07/31)
2. EBV products-containing exosome-mediated intercellular regulation between NPC cells and niche stromal cells-II (MOST 108-2314-B-008-003-).
3. Emerging role of exosomes in cancer: clinical insights and diagnostic potential-- Epstein-Barr virus associated exosome-mediated modulation of NPC stroma (Veterans General Hospitals and University System of Taiwan Joint Research Program VGHUST 108-G4-3-1, 2019/1/1~2019/12/31, Project Director).
4. EBV products-containing exosome-mediated intercellular regulation between NPC cells and niche stromal cells -I (MOST 107-2314-B-008-003-).

5. The invading force of invadopodia: mechanistic studies for translational applications-- leukemia inhibitory factor reprograms invasive modes to facilitate cancer invasiveness-II. (VGHUST107-G4-2-1, 2018/1/1~2018/12/31, Project Director).
6. Epstein-Barr virus dedifferentiates adipocytes and contributes to the reconstruction of tumor microenvironment. (2015/08/01~2018/07/31, MOST -104-2321-B-008-003-MY3).
7. The invading force of invadopodia: mechanistic studies for translational applications-- Leukemia inhibitory factor reprograms invasive modes to facilitate cancer invasiveness. (VGHUST106-G4-2-1, 2017/1/1~2017/12/31, Project Director).

Professional Service

1. **Journal article reviewer** (accepted works, within 3yrs)
 - Clinical Cancer Research
 - Theranostics
 - Cancer Research
 - Head and Neck
2. **Grant reviewer**
 - Most (The Ministry of Science and Technology) research grants
 - Veterans General Hospitals and University System of Taiwan Joint Research Program.

Publications

1. Po-Ju Lee, Yun-Hua Sui, Tzu-Tung Liu, Ngan-Ming Tsang, Chen-Han Huang, Ting-Yi Lin, Kai-Ping Chang*, **Shu-Chen Liu*** Epstein-Barr viral product-containing exosomes promote fibrosis and nasopharyngeal carcinoma progression through activation of YAP1/FAP α signaling in fibroblasts. *Journal of Experimental & Clinical Cancer Research* 2022 Aug 20;41(1):254. doi: 10.1186/s13046-022-02456-5. PMID: 35986369. (IF: 12.66; 24/245, Oncology) (corresponding author)
2. **Shu-Chen Liu***, Ngan-Ming Tsang, Po-Ju Lee, Yun-Hua Sui, Chen-Han Huang and Tzu-Tung Liu (2021, Apr). Epstein-Barr virus induces adipocyte dedifferentiation to modulate the tumor microenvironment. *Cancer Research*, 2021 Apr 6; doi: 10.1158/0008-5472. (IF: 12.7; ranking: 15/207, Cancer Research) (the first & corresponding author)
3. Ting-Wen Chen, Kai-Ping Chang, Chun-Chia Cheng, Cheng-Yi Chen, Shu-Wen Hong, Zong-Lin Sie, Hsing-Wen Cheng, Wei-Chen Yen, Yenlin Huang, **Shu-Chen Liu,*** and Chun-I Wang*. Characterization of Recurrent Relevant Genes Reveals a Novel Role of RPL36A in Radioresistant Oral Squamous Cell Carcinoma. *Cancers* 2021, 13(22), 5623. (IF: 6.575, ranking: 60/245, Oncology) (corresponding author).
4. **Shu-Chen Liu***, Tien Hsu , Yu-Sun Chang, An-Ko Chung, Shih Sheng Jiang, Chun-Nan OuYang, Chiou-Hwa Yuh, Chuen Hsueh, Ya-Ping Liu, Ngan-Ming Tsang*. Cytoplasmic

- LIF reprograms invasive mode to enhance NPC dissemination through modulating YAP1-FAK/PXN signaling. *Nature communications*, (2018) 9: 5105. (IF: 17.694, ranking: 6/73, Multidisciplinary Sciences) (the first & corresponding author)
5. Mai-Huong Thi Nguyen, Chen-Huan Lin, Szu-Mam Liu, Azusa Miyashita, Hironobu Ihn, Hsuan Lin, Chi Hou Ng, Jen-Chieh Tsai, Ming-Hong Chen, Mu-Shiun Tsai, In-Yu Lin, **Shu-Chen Liu**, Long-Yuan Li, Satoshi Fukushima, Jean Lu, Nianhan Ma* (2020, Dec). miR-524-5p reduces the progression of the BRAF inhibitor-resistant melanoma. *Neoplasia*, 2020 Dec;22(12):789-799. (IF:6.218, ranking: 66/245, Oncology).
 6. Zong-Lin Sie, Ruei-Yang Li, Bonifasius Putera Sampurna, Po-Jui Hsu, **Shu-Chen Liu**, Horng-Dar Wang, Chou-Long Huang, and Chiou-Hwa Yuh* (2020, Mar). WNK1 Kinase Stimulates Angiogenesis to Promote Tumor Growth and Metastasis. *Cancers*, 12(3), 575. (IF: 6.575, ranking: 60/245, Oncology).
 7. Wen Ching Chuang, Ngan Ming Tsang, Chi Cheng Chuang, Kai Ping Chang, Ping Ching Pai, Kuan Hung Chen, Wen Chi Chou, Shiao Fwu Tai, **Shu Chen Liu**, Kin Fong Lei* (2020, Jan). Association of subcutaneous and visceral adipose tissue with overall survival in Taiwanese patients with bone metastases – results from a retrospective analysis of consecutively collected data. *Plos one*, 15(1):e0228360. (IF: 3.752, ranking: 29/73, Multidisciplinary sciences).
 8. Kuan-Hung Chen, Ngan-Ming Tsang, Wen-Chi Chou, Shiao Fwu Tai, **Shu-Chen Liu**, Kin-Fong Lei, Kai-Ping Chang, Wen-Ching Chuang, Ping-Ching Pai* (2019, May). Prognostic significance of pretreatment neutrophil-to-lymphocyte ratio in older patients with metastatic cancer. *Journal of Geriatric Oncology*, 2019 May 10. pii: S1879-4068(19)30040-2. (IF: 3.929, Ranking: 29/54, Geriatrics and Gerontology).
 9. Ji-Lin Jou, **Shu-Chen Liu** and Lin I *(2019, May). Tail shape evolution dynamics of MDCK cells on fibronectin substrates. *Biomedical Physics & Engineering Express*, 2019 (5) 045001. (IF: 1.291, Ranking: 163/229, Biomedical Engineering).
 10. Hsiang-Ying Chen, Yi-Teng Hsiao, **Shu-Chen Liu**, Tien Hsu, Wei-Yen Woon, Lin I *. Enhancing Cancer Cell Collective Motion and Speeding up Confluent Endothelial Dynamics through Cancer Cell Invasion and Aggregation. *Physical Review Letters*. 2018, 121(1): 01810. (IF: 9.185, ranking: 8/86, physics, multidisciplinary).
 11. Tzong-Shoon Wu¹, Lian-Chen Wang¹, **Shu-Chen Liu**¹, Ting-Yu Hsu, Chun-Yen Lin, Gou-Jin Feng, Jian-Ming Chen, Hao-Ping Liu, I-Che Chung, Tzu-Chen Yen, Yu-Sun Chang, Shuen-Kuei Liao, Chen Chang, Kai-Ping N Chow*. EBV oncogene N-LMP1 induces CD4 T cell-mediated angiogenic blockade in the murine tumor model. *J Immunol*. 2015 May 1;194(9):4577-87 (¹co-first author) (highlight article, IF: 5.422).

12. **Shu-Chen Liu** and Yu-Sun Chang. Role of leukemia inhibitory factor in nasopharyngeal carcinogenesis. *Molecular & Cellular Oncology*. 2014 Jul 15 1(1): e29900. (first author)
13. Chia-Wei Hsu, Jau-Song Yu, Pei-Hua Peng, **Shu-Chen Liu**, Yu-Sun Chang, Kai-Ping Chang, Chih-Ching Wu. Secretomic profiling of primary cells reveals that THBS2 is a salivary biomarker of oral cavity squamous cell carcinoma. *J Proteome Res*. 2014 Nov 7;13(11):4796-807. (IF: 4.268)
14. **Shu-Chen Liu**, Ngan-Ming Tsang, Wen-Che Chiang, Kai-Ping Chang, Chuen Hsueh, Ying Liang, Jyh-Lyh Juang, Kai-Ping N Chow, Yu-Sun Chang*Leukemia inhibitory factor promotes nasopharyngeal carcinoma progression and radioresistance. *J Clin Invest*. 2013 Dec 2;123(12):5269-83 (IF:14.808, highlight article) (first author).
15. Hao-Ping Liu, Chia-Chun Chen, Chih-Ching Wu, Yi-Chuan Huang, **Shu-Chen Liu**, Ying Liang, Kai-Ping Chang, Yu-Sun Chang. Epstein-Barr virus-encoded LMP1 interacts with FGD4 to activate Cdc42 and thereby promote migration of nasopharyngeal carcinoma cells. *PLoS Pathog*. 2012 May;8(5): e1002690 (IF: 6.608)
16. Pei-Hua Peng, Chih-Ching Wu, **Shu-Chen Liu**, Kai-Ping Chang, Chi-De Chen, Ya-Ting Chang, Chia-Wei Hsu, Yu-Sun Chang, Jau-Song Yu. Quantitative plasma proteome analysis reveals aberrant level of blood coagulation-related proteins in nasopharyngeal carcinoma. *J Proteomics*. 2011 May 1;74(5):744-57. (IF: 3.914)
17. Hsin-Chien Chen , Hsin-I Ma, Huey-Kang Sytwu, Hsing-Won Wang, Chia-Chi V Chen, **Shu-Chen Liu**, Chi-Huang Chen, Hang-Kang Chen, Chih-Hung Wang. Neural stem cells secrete factors that promote auditory cell proliferation via a leukemia inhibitory factor signaling pathway. *J Neurosci Res*. 2010 Nov 15;88(15):3308-18. (IF: 4.164)
18. **Shu-Chen Liu**, Yee-Min Jen, Shih Sheng Jiang, Junn-Liang Chang, Chao A Hsiung, Chih-Hung Wang, Jyh-Lyh Juang. G(alpha)12-mediated pathway promotes invasiveness of nasopharyngeal carcinoma by modulating actin cytoskeleton reorganization. *Cancer Research*. 2009 Aug 1;69(15):6122-30 (IF: 12.7) (first author)
19. Chi-Chung Wen, **Shu-Chen Liu**, Li-Chu Chien, Chung-Yen Lin, Chao A Hsiung, Jyh-Lyh Juang. Temporal transcription program of recombinant Autographa californica multiple nucleopolyhedrosis virus. *J Virol*. 2006 Sep; 80(18):8989-99. (IF: 5.103)
20. Chi-Chung Wen , Yuh-Jenn Wu, Yung-Hsiang Huang, Wei-Chen Chen, **Shu-Chen Liu**, Shih Sheng Jiang, Jyh-Lyh Juang, Chung-Yen Lin, Wen-Tsen Fang, Chao Agnes Hsiung, I-Shou Chang. A Bayes regression approach to array-CGH data. *Stat Appl Genet Mol Biol*. 2006;5: Article3. (IF: 1.055)