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Speaker information

General Information

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Affiliation	Graduate Institute of Cancer Biology and Drug Discovery, College of Medical Science and Technology, Taipei Medical University	
Education Background	2001-2007 **National Yang-Ming University**, Taipei, Taiwan Ph.D. in Biochemistry and Molecular Biology, Institute of Biochemistry and Molecular Biology 1999-2001 **National Yang-Ming University**, Taipei, Taiwan M.S. in Pharmaceutical Sciences, Institute of Biopharmaceutical Sciences 1995-1999 **National Taiwan Normal University**, Taipei, Taiwan B.S. in Biology, Department of Biology	
Professional Appointment	2022- **Associate Professor**, Graduate Institute of Cancer Biology and Drug Discovery, TMU 2018-2022 **Assistant Professor**, Graduate Institute of Cancer Biology and Drug Discovery, TMU 2013-2018 **Adjunct Assistant Professor**, Ph.D. Program for Translational Medicine, TMU 2013-2014 **Research Scholar**, Ph.D. Program for Translational Medicine, TMU 2012-2013 **Visiting Scholar,** UC Davis Comprehensive Cancer Center, USA 2011-2012 **Post-Doctoral Fellow,** National Chiao Tung University, Taiwan 2007-2011 **Post-Doctoral Fellow,** National Yang-Ming University, Taiwan	
Research Interest	RNA biology, Non-coding RNA, RNA Condensate, RNA-based biomarker and therapeutics	
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Speaker information

Recent Publications

1. Liao TT, Chen YH, Li ZY, Hsiao AC, Huang YL, Hao RX, Tai SK, Chu PY, **Shih JW**, Kung HJ, and Yang MH. Hypoxia-induced long non-coding RNA HIF1A-AS2 regulates stability of major histocompatibility complex class I protein in head and neck cancer. *Cancer Immunol. Res.* 2024 (provisionally accepted).

2. Chu CY, Lee YC, Hsieh CH, Yeh CT, Chao TY, Chen PH, Lin IH, Hsieh TH, **Shih JW**, Cheng CH, Chang CC, Lin PS, Huang YL, Chen TM, Yen Y, Ann DK, and Kung HJ. Genome-wide CRISPR/Cas9 knockout screening uncovers a novel inflammatory pathway critical for resistance to arginine-deprivation therapy. *Theranostics* 2021. *11*(8): 3624.

3. Lei CS, Kung HJ, and **Shih JW**. Long non-coding RNAs as functional codes in oral cancer: translational potential, progress and promises. *Int. J. Mol. Sci.* 2021; *22*(9): 4903.

4. Kuo TC, Kung HJ and **Shih JW**. Signaling in and out: long-noncoding RNAs in tumor hypoxia. *J. Biomed. Sci.* 2020; *27*: 59.

5. Huang YJ, Huang TH, Yadav VK, Sumitra MR, Tzeng DT, Wei PL, **Shih JW**, and Wu ATH. Preclinical investigation of ovatodiolide as a potential inhibitor of colon cancer stem cells via downregulating sphere-derived exosomal β-catenin/STAT3/miR-1246 cargoes. 2020. *Am. J. Cancer Res. 10*(8): 2337.

6. **Shih JW**, and Kung HJ. Long non-coding RNA and tumor hypoxia: new players ushered toward an old arena. *J. Biomed. Sci.* 2017; *24*: 53.

7. **Shih JW**, Chiang WF, Wu ATH, Wu MH, Wang LY, Yu YL, Hung YW, Wang WC, Chu CY, Hung CL, Changou, CA, Yen Y, and Kung HJ. Long noncoding RNA LncHIFCAR/MIR31HG is a HIF-1α co-activator driving oral cancer progression. *Nat. Commun.* 2017; 8: 15874.

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Speech Topic and Abstract

Title:
Development of lncRNA-Based Liquid Biopsy Platforms and Antisense Oligonucleotide Therapeutics for Early Detection and Treatment of Oral Squamous Cell Carcinoma

Abstract:
In recent years, the advancement of RNA-based therapeutics and biomarkers has substantially transformed the landscape of cancer diagnosis and treatment. Long non-coding RNAs (lncRNAs) have notably emerged as pivotal regulators of gene expression and cellular processes, making them valuable biomarkers for early cancer detection. Liquid biopsy platforms utilizing lncRNAs offer a non-invasive and efficient method to detect the progression of cancer, thereby facilitating timely clinical intervention. Additionally, antisense oligonucleotides (ASOs) targeting specific RNA sequences have shown promise in silencing oncogenes and modulating disease pathways, providing a tailored therapeutic approach.

We have previously identified an oncogenic, hypoxia-inducible lncRNA, *LncHIFCAR* (also known as MIR31HG), as a HIF-1α co-activator crucial for oral cancer progression. In our studies, *LncHIFCAR* and other hypoxia-induced lncRNAs were detectable in saliva through the optimization of Q-PCR design and detection methods, highlighting their potential as biomarkers. Notably, *LncHIFCAR* originates from the same primary RNA transcript as miR-31, and both are reported to be upregulated in oral and pancreatic cancers, showing a significant correlation with disease progression and invasion. This parallel upregulation suggests their collaborative effects on cancer progression. Through innovative ASO-mediated silencing, dual targeting of *LncHIFCAR* and miR-31 can be achieved, exemplifying a novel precision medicine strategy and potentially opening new and promising perspectives in cancer therapy.