

# CHIA-HAO TUNG

## Cancer Biologist

Postdoctoral associate  
[The Jackson Laboratory for Genomic Medicine](#)

### Research Interests:

- Cancer genomics
- Cancer biology
- Translational medicine

## EMPLOYMENT

2023  
|  
Present

### Postdoctoral associate

The Jackson Laboratory for Genomic Medicine 📍 Farmington, CT

- Supervised by Chia-Lin Wei, PhD
- **Research focus:** *Dissecting the role of ecDNA-super enhancer condensates in cancers*

2019  
|  
2022

### Postdoctoral fellow, Institute of Clinical Medicine

National Cheng Kung University 📍 Tainan, Taiwan

- Supervised by Tse-Ming Hong, PhD
- *Deciphering the role of  $\alpha$ -Catulin in lung cancer stemness*
- *Investigating the clinical relevance of deubiquitinase USP5 in lung cancer stemness*
- *Identification and investigation of long non-coding RNAs (lncRNAs) in regulating the stemness properties of lung cancer*
- *Study of the clinical association between lncRNAs and cancer stemness pathways in lung cancer using bioinformatic analysis*

## EDUCATION

2012  
|  
2019

### National Cheng Kung University

Ph.D. in Basic Medical Sciences 📍 Tainan, Taiwan

- Supervised by Tse-Ming Hong, PhD
- **Dissertation title:** *Investigating the mechanisms underlying microRNA-150-5p-mediated epithelial-mesenchymal transition (EMT) and metastasis in ovarian cancer and its clinical significance*

2009  
|  
2011

### National Cheng Kung University

M.S. in Clinical Medicine 📍 Tainan, Taiwan

- Supervised by Tse-Ming Hong, PhD
- **Thesis title:** *The role of microRNA-509-3p in recurrence of ovarian cancer*

## CONTACT INFO

✉ [chiahao.tung@jax.org](mailto:chiahao.tung@jax.org)

🐦 [ChiaHaoTung](#)

📖 [Chia-Hao Tung](#)

in [linkedin.com/in/chtung](https://www.linkedin.com/in/chtung)

📞 (+1) 860-479-2223

🏠 10 Discovery Drive, Farmington, CT, 06032, USA

For more information, please contact me via email.

## SKILLS

-Highly skilled in performing and establishing *in vitro* and *in vivo* experiments for studying cancer stemness and metastasis.

-Extensive experience in studying the regulation of microRNAs and long non-coding RNAs in ovarian cancer and lung cancer.

-Experienced in establishment of orthotopic mouse model for ovarian cancer (intrabursal injection).

-Programming experienced in Bash and R for computing the clinical relevance of specific genes or signatures in GEO and TCGA datasets.

*This resume was made with the R package [pagedown](#).*

*Last updated on 2023-03-13.*



## HONORS AND AWARDS

- 2020 ● **Honorary Membership of The Phi Tau Phi Scholastic Honor Society of the Republic of China**  
The Phi Tau Phi Scholastic Honor Society of the Republic of China 📍 Tainan, Taiwan
- 2017 ● **AACR-Aflac, Inc. Scholar-In-Training Award**  
American Association for Cancer Research 📍 Shanghai, China
- 2016 ● **Oral Presentation Merit Award**  
Taiwan Genomics and Genetics Society 📍 Nantou, Taiwan
- 2014 ● **Excellent Poster Award**  
Taiwan Genomics and Genetics Society 📍 Nantou, Taiwan



## RESEARCH EXPERIENCE

- 2023 | Present ● **Postdoctoral associate**  
The Jackson Laboratory for Genomic Medicine 📍 Farmington, CT
  - Conducted molecular and cell biology experiments (cell culture, neurosphere culture, cell viability assay, Flow cytometry and FISH)
  - Constructed NGS libraries (WGS, RNA-seq, ChIP-seq, ChIA-PET, ChIATAC and ChIA-Drop)
  - Processed data and run pipelines by HPC under Linux environment
  - Data analysis and visualization by R
- 2019 | 2022 ● **Postdoctoral Fellow**  
National Cheng Kung University 📍 Tainan, Taiwan
  - Performed bioinformatic research towards understanding the correlation of lncRNAs and cancer stemness in lung adenocarcinoma
  - Developed methods to quantify sphere formation in both lung cancer and ovarian cancer
  - Investigated the effects of lncRNAs on the maintenance of lung cancer stem cells
  - Studied the clinical correlation of interested genes at protein level by using the CPTAC-LUAD dataset
  - Developed methods to isolate total RNAs and detect the expression of miRNAs in plasma of patients with ovarian cancer
  - Computed the pathway scores by using the single-sample gene set enrichment analysis (ssGSEA) to correlate with the expression of our interested target in the TCGA-LUAD and TCGA-OV dataset
- 2012 | 2019 ● **Ph.D. student**  
National Cheng Kung University 📍 Tainan, Taiwan
  - Investigated the promoting role of miR-150-5p in recurrence and metastasis of ovarian cancer
  - Established an orthotopic ovarian cancer mouse model by intrabursal injection of ovarian cancer cells to demonstrate a metastasis-promoting role of miR-150-5p
  - Performed bioinformatic analysis to determine the positive correlation of miR-150-5p and metastasis-associated signatures in clinical specimens by using the GEO and TCGA-LUAD datasets
  - Demonstrated the clinical correlation of miR-150-5p/c-Myb/Slug axis in mesenchymal subtype of ovarian cancer
  - Investigated the relationships of miR-150-5p, Slug, and miR-506-514 cluster in ovarian cancer
  - Evaluated the role of hypoxia in promoting the expression of miR-150-5p

2009  
|  
2011

## ● Graduate Research Assistant

National Cheng Kung University

📍 Tainan, Taiwan

- Developed and performed methods to isolate and measure the expression of miRNAs in clinical specimens from primary and recurrent ovarian tumors
- Examine the effects of miR-509-3p in resistance to first-line chemotherapy (platinum/paclitaxel) in ovarian cancer
- Predicted and validated the target genes of miR-509-3p

## 🔪 TECHNICAL SKILLS

### ● Cell Biology

- Cell culture
- Hypoxia cell culture
- Cancer sphere culture
- Stable cell line development
- Recombinant gene expression analysis
- Cytotoxicity assays (WST-1)
- Cell proliferation assays
- Cell cycle analysis via Propidium Iodide staining
- Flow cytometry analysis
- Light microscopy
- Transwell migration and invasion assay
- Wound healing assay
- Cell tracking analysis

### ● Molecular Biology

- DNA and RNA isolation
- Plasmid cloning
- Design of short hairpin RNA
- Real time qPCR
- Immunofluorescence
- Immunohistochemistry
- In situ hybridization
- Fluorescence in situ hybridization
- Chromatin immunoprecipitation
- Preparation of NGS libraries (WGS, RNA-seq, ChIP-seq, ChIA-PET, ChIA-Drop, ChIA-TAC)

### ● Biochemistry

- Gel electrophoresis
- Western blotting
- Co-immunoprecipitation
- *In vivo* deubiquitination assay
- *In vitro* luciferase reporter system (3'UTR luciferase reporter assay, promoter activity assay)

### ● Animal works

- In Vivo Imaging System (IVIS) - Detect murine tumor growth and metastasis.
- Handling and dissection of mice
- Developed orthotopic ovarian cancer mouse model (intrabursal injection)

### ● Bioinformatics and biostatistics

- Programming experience in Bash (RNA-seq and ChIP-seq data processing)
- Programming experience in R (for using package "fgsea", "gsva", "survival", "survminer", "timeROC", "corrplot", "pheatmap", "drc", etc.)
- Prediction of potential transcription factor binding sites and microRNA binding sites
- Analysis of genetic and clinical informations from public databases (GEO, TCGA, CPTAC, CTRP, and CCLE)
- Biostatistical methods (Student's *t* test, Mann-Whitney *U* test, one way ANOVA, Wilcoxon signed-rank test, correlation analysis, Chi-square test, log-rank test, and Cox proportional hazard regression)



## CONFERENCE PRESENTATIONS

- 2017 ● **MicroRNA-509-3p enhances cisplatin efficacy in ovarian cancer**  
AACR International Conference on NEW HORIZON in CANCER RESEARCH: Research Propelling Cancer Prevention and Cures 📍 Shanghai, China  
• **Poster presentation.** Authored with Keng-Fu Hsu, Yuh-Ling Chen, and Tse-Ming Hong  
• **Selected for AACR-Aflac, Inc. Scholar-In-Training Award**
- 2016 ● **CASZ1 promotes ovarian cancer metastasis**  
Taiwan-Japan Joint Conference on Genomic Studies and Annual Retreat of Taiwan Genomics and Genetics Society 📍 Nantou , Taiwan  
• **Oral presentation.** Authored with Yi-Ying Wu, Chia-Lin Chang, Yuan-Jhe Chuang, Jia-En Wu, Yeong-Chang Chen, Yuh-Ling Chen, Tse-Ming Hong, and Keng-Fu Hsu  
• **Selected for Oral Presentation Merit Award**
- 2014 ● **Sensitization of ovarian cancer cells to cisplatin by microRNA-509-3p**  
Annual Retreat of Taiwan Genomics and Genetics Society, Nantou , Taiwan 📍 Nantou , Taiwan  
• **Poster presentation.** Authored with Keng-Fu Hsu, Yuh-Ling Chen, and Tse-Ming Hong  
• **Selected for Excellent Poster Award**



## PUBLICATIONS

- 2023 ● **Stemness indices analysis identifies ubiquitin specific peptidase 5 as a therapeutic target for suppressing cancer stemness in lung cancer**  
(In submission)  
• **Tung CH**, Huang MF, Wang WL, Wu YY, Wu JE, Tsai YT, Hsu XR, Lin SH, Hsu CL, Chen YL<sup>\*</sup>, Hong TM<sup>\*</sup>
- **MiR-455-5p suppresses PDZK1IP1 to promote the motility of oral squamous cell carcinoma and accelerate clinical cancer invasion by regulating partial epithelial-to-mesenchymal transition**  
*Journal of Experimental & Clinical Cancer Research*. 2023; 42 (1): 40.  
• Hsiao SY, Weng SM, Hsiao JR, Wu YY, Wu JE, **Tung CH**, Shen WL, Sun SF, Huang WT, Lin CY, Chen SH, Hong TM<sup>\*</sup>, Chen YL<sup>\*</sup>, Chang JY<sup>\*</sup>
- 2022 ● **A novel DNA aptamer targeting lung cancer stem cells exerts a therapeutic effect by binding and neutralizing Annexin A2**  
*Molecular Therapy - Nucleic Acids*. 2022; 27: 956-968.  
• Wu YY, Hsieh IS, **Tung CH**, Weng CH, Wu JE, Yu JS, Hong TM<sup>\*</sup>, Chen YL<sup>\*</sup>
- **Alpha-Catulin promotes cancer stemness by antagonizing WWP1-mediated KLF5 degradation in lung cancer**  
*Theranostics*. 2022; 12 (3): 1173-1186.  
• **Tung CH**, Huang MF, Liang CH, Wu YY, Wu JE, Hsu CL, Chen YL<sup>\*</sup>, Hong TM<sup>\*</sup>
- 2020 ● **DNA methylation maintains the CLDN1-EPHB6-SLUG axis to enhance chemotherapeutic efficacy and inhibit lung cancer progression**  
*Theranostics*. 2020; 10 (19): 8903-8923.  
• Wu JE, Wu YY, **Tung CH**, Tsai YT, Chen HY, Chen YL<sup>\*</sup>, Hong TM<sup>\*</sup>

- **MicroRNA-150-5p promotes cell motility by inhibiting c-Myb-mediated Slug suppression and is a prognostic biomarker for recurrent ovarian cancer**  
*Oncogene*. 2020; 39 (4): 862-876.  
• **Tung CH**, Kuo LW, Huang MF, Wu YY, Tsai YT, Wu JE, Hsu KF, Chen YL\*, Hong TM\*
- 2019 ● **A DNA Aptamer Targeting Galectin-1 as a Novel Immunotherapeutic Strategy for Lung Cancer**  
*Molecular Therapy - Nucleic Acids*. 2019; 18: 991-998.  
• Tsai YT, Liang CH, Yu JH, Huang KC, **Tung CH**, Wu JE, Wu YY, Chang CH, Hong TM\*, Chen YL\*
- 2016 ● **CASZ1 is a novel promoter of metastasis in ovarian cancer**  
*American Journal of Cancer Research*. 2016; 6 (6): 1253-1270.  
• Wu YY, Chang CL, Chuang YJ, Wu JE, **Tung CH**, Chen YC, Chen YL, Hong TM, Hsu KF\*



## REFERENCES

- **Tse-Ming Hong, Ph.D.**  
Professor  
Institute of Clinical Medicine,  
National Cheng Kung University  
**Address:** 1 University Road, Tainan, 70101 Taiwan  
**E-mail:** [tmhong@mail.ncku.edu.tw](mailto:tmhong@mail.ncku.edu.tw)
- **Yuh-Ling Chen, Ph.D.**  
Professor  
Institute of Oral Medicine,  
National Cheng Kung University  
**Address:** 1 University Road, Tainan, 70101 Taiwan  
**E-mail:** [yuhling@mail.ncku.edu.tw](mailto:yuhling@mail.ncku.edu.tw)
- **Pei-Jung Lu, Ph.D.**  
Distinguished Professor  
Institute of Clinical Medicine,  
National Cheng Kung University  
**Address:** 1 University Road, Tainan, 70101 Taiwan  
**E-mail:** [pjlu2190@mail.ncku.edu.tw](mailto:pjlu2190@mail.ncku.edu.tw)