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Research Interest

Our research goal is using RNA as a diagnostic and therapeutic target/tool in cancer. Tumor metastasis is a key step in facilitating cancer progression, which is theoretically an irreversible and lethal process. We mainly focus on investigating the mechanism of how cancer cells acquire the capacity to metastasize along with the possible therapeutic and diagnostic strategies. Cellular functions rely on fine-tuned regulation from DNA to RNA to protein (central dogma). As a carrier for genetic information, RNA has long been widely-recognized as a messenger for protein coding. For recent decades, a large number of accumulating researches has identified new functions of noncoding RNAs (miRNA, lincRNA, circRNA, etc.), such as gene silencing, epigenetic, and protein modification. We devote ourselves to understanding the regulation of RNA processing and the resulting impact in cancer. Since most noncoding RNAs act as RNA-protein complexes (RNPs), we focus on studying the pathophysiological roles of RNA and RNA-binding protein in human cancer.

Research Field

RNA-binding protein

Post-translational regulation

Precision oncology

Honors and Awards

1. *Excellent Young Scholar Grant (2014-2017; Ministry of Science and Technology, Taiwan)*
2. *Outstanding Teaching Award (2022, National Cheng Kung University)*
3. *Excellent Counseling Award (2022, National Cheng Kung University)*
4. *2030 Cross-Generation Young Scholars Program - Excellent Young Scholar Grant (2022-2025; Ministry of Science and Technology, Taiwan)*
5. *NSTC Ta-You Wu Memorial Award (2022; National Science and Technology Council, Taiwan)*
6. *NSTC Ta-You Wu Memorial Award Grant (2023-2026; National Science and Technology Council, Taiwan)*

Selected Publications Within Five Years (as a first/corresponding author)

1. Hui-Huang Lai, Jie-Ning Li, Ming-Yang Wang, Hsin-Yi Huang, Carlo M. Croce, Hui-Lung Sun, Yu-Jhen Lyu, Jui-Wen Kang, Ching-Feng Chiu, Mien-Chie Hung, Hiroshi I. Suzuki, **Pai-Sheng Chen*** (2018, Feb). HIF-1 α promotes autophagic proteolysis of Dicer and enhances tumor metastasis. *Journal of Clinical Investigation*, 2018 Feb 1;128(2):625-643. doi: 10.1172/JCI89212. **(R/C=2/139; 1.44%, MEDICINE, RESEARCH & EXPERIMENTAL, IF=19.486)**
***Corresponding Author**
2. Hui-Huang Lai, **Pai-Sheng Chen*** (2018, Aug). Dual mechanism of Dicer downregulation facilitates cancer metastasis. *Molecular & Cellular Oncology*, 24;5(5):e1472056. doi:

10.1080/23723556.2018.1472056. eCollection 2018.

***Corresponding Author**

3. Hui-Huang Lai, Li-Jyuan Lin, Liang-Yi Hung and **Pai-Sheng Chen*** (2018, Nov). Role of Dicer in regulating oxaliplatin resistance of colon cancer cells. *Biochemical and Biophysical Research Communications*, 506:87-93. pii: S0006-291X(18)32227-7. doi: 10.1016/j.bbrc.2018.10.071. [Epub ahead of print]. MOST 107-2320-B-006-009. **(R/C=196/296; 66.22%, BIOCHEMISTRY & MOLECULAR BIOLOGY, IF=3.322) *Corresponding Author**
4. Hui-Huang Lai, Chih-Wei Li, Chih-Chen Hong, Hung-Yu Sun, Da-Liang Ou, **Pai-Sheng Chen*** (2019, Jan). TARBP2-mediated destabilization of Nanog overcomes sorafenib resistance in hepatocellular carcinoma. *Molecular Oncology*, 2019 Jan 18. doi: 10.1002/1878-0261.12449. [Epub ahead of print]. MOST 107-2320-B-006-068. **(R/C=51/245; 20.82%, ONCOLOGY, IF=7.449) *Corresponding Author**
5. Ming-Yang Wang, Hsin-Yi Huang, Yao-Lung Kuo, Chiao Lo, Hung-Yu Sun, Yu-Jhen Lyu, Bo-Rong Chen, Jie-Ning Li, **Pai-Sheng Chen***. (2019, Feb). TARBP2-Enhanced Resistance During Tamoxifen Treatment in Breast Cancer. *Cancers*, 2019, 11(2), 210; doi.org/10.3390/cancers11020210. *European Patent Approved No. 3 539 541* **(R/C=60/245; 24.49%, ONCOLOGY, IF=6.575) *Corresponding Author**
6. **Pai-Sheng Chen[#]**, Shao-Chieh Lin, Shaw-Jenq Tsai* (2020, Mar). Complexity in Regulating microRNA Biogenesis in Cancer. *Experimental Biology and Medicine*, 245(5):395-401. doi: 10.1177/1535370220907314. Epub 2020 Feb 19. **(R/C=76/139; 54.68%, MEDICINE, RESEARCH & EXPERIMENTAL, IF=2.691) [#]First Author**
7. **Pai-Sheng Chen[#]**, Wen-Tai Chiu, Pei-Ling Hsu, Shih-Chieh Lin, I-Chen Peng, Chia-Yih Wang, Shaw-Jenq Tsai* (2020, May). Pathophysiological Implications of Hypoxia in Human Diseases. *Journal of Biomedical Science*, 27(1):63. doi: 10.1186/s12929-020-00658-7. **(R/C=11/139; 7.91%, MEDICINE, RESEARCH & EXPERIMENTAL, IF=12.771) [#]First Author**
8. Jie-Ning Li, Hui-Lung Sun, Ming-Yang Wang, **Pai-Sheng Chen*** (2021, Jul). E-cadherin Interacts With Posttranslationally-Modified AGO2 to Enhance miRISC Activity. *Frontiers in Cell and*

- Developmental Biology*, 9:671244. doi: 10.3389/fcell.2021.671244. eCollection 2021. (R/C=6/39; 15.38%, DEVELOPMENTAL BIOLOGY, IF=6.081) *Corresponding Author
9. Jie-Ning Li, Ming-Yang Wang, Yi-Ting Chen, Yao-Lung Kuo, **Pai-Sheng Chen*** (2021, Dec). Expression of SnoRNA U50A Is Associated with Better Prognosis and Prolonged Mitosis in Breast Cancer. *Cancers*. 13(24):6304. doi: 10.3390/cancers13246304. *European Patent Approved*. (R/C=60/245; 24.49%, ONCOLOGY, IF=6.575)*Corresponding Author
 10. Yu-Yun Shao[#], **Pai-Sheng Chen**[#], Liang-In Lin, Bin-Shyun Lee, Andrew Ling, Ann-Lii Cheng, Chiun Hsu & Da-Liang Ou* (2022, Mar). Low miR-10b-3p associated with sorafenib resistance in hepatocellular carcinoma. *British Journal of Cancer*. doi: 10.1038/s41416-022-01759-w. Online ahead of print. (R/C=37/245; 15.10%, ONCOLOGY, IF=9.089) [#]First Author
 11. **Pai-Sheng Chen**^{#,*} (2019, Feb). Regulation of Selective Proteolysis in Cancer. *The Ubiquitin/Proteasome System*. In production. Matthew Summers, editor, IntechOpen, London, UNITED KINGDOM. ISBN 978-953-51-7766-1 (Invited book chapter) *Corresponding Author

Invited SCI Journal Reviewer (Selected Journal list)

1. *Cancer Research* (5)
2. *Cancer Communications* (1)
3. *Oncogene* (4)
4. *Cancer Letters* (2)
5. *Theranostics* (6)
6. *Molecular Oncology* (4)
7. *Therapeutic Advances in Medical Oncology* (5)
8. *Oncogenesis* (2)

Editorial Board Member

1. *BMC Cancer*
2. *Frontiers in Oncology*
3. *Frontiers in Cell and Developmental Biology*

Patents

1. Method of Evaluating Drug Resistance and Treatment Effect. **European Patent #EP3539541 B1. Chen Pai-Sheng***, Li Jie-Ning, Kuo Yao-Lung, Wang Ming-Yang. 2020/12 Approved
2. Method of Evaluating Drug Resistance and Treatment Effect. **US Patent #US 11,435,353 B2. Chen Pai-Sheng***, Li Jie-Ning, Kuo Yao-Lung, Wang Ming-Yang. 2022/09 Approved
3. Method and kit for the evaluation of the prognosis of breast cancer. **European Patent #EP3540078. Chen Pai-Sheng***, Li Jie-Ning, Kuo Yao-Lung. 2022/10 Approved

Advisor and Advisory Committees

Consultant, Breast Medical Center, National Cheng Kung University Hospital, 2022 – present

Advisor, Chee-Yang Tan, Ph.D., 09/2022 – present

Advisor, Chi-Hsun Yang, Ph.D., 09/2021 – present

Advisor, Yu-Chih Chen, Ph.D., 09/2019 – present

Advisor, Pei-Ya Tseng, M.S., 09/2021 – present

Advisor, Jie-Ning Li, Ph.D., 09/2014 – 01/2021

Advisor, Hui-Huang Lai, Ph.D., 09/2013 – 04/2018

Advisor, Nguyen Thi Thanh Nha, M.S., 09/2019 – 03/2021

Advisor, Chih-Wei Li, M.S., 09/2015 – 03/2018

Advisor, Wen-Hui Ku, M.S., 09/2016 – 07/2018

Advisor, Hei Chen, M.S., 09/2016 – 07/2019

Advisor, Jie-Ning Li, M.S., 09/2013 – 07/2014

Advisor, Hui-Huang Lai, M.S., 09/2012 – 07/2013

Member, Yung-Chieh Chang, Ph.D., 03/2022

Member, My-Hang Nguyen Thi, M.S., 01/2022

Member, Ting-Wei Kang, M.S., 01/2022

Member, Ruo-Chi Huang, M.S., 07/2021

Member, Yi-Cian Wang, M.S., 07/2021

Member, Chuan-Yun Guo, M.S., 08/2021

Member, Chi-Cheng Io, M.S., 08/2021

Member, Meng-Chien Lu, M.S., 07/2021

Member, Shin-Chin Lin, M.S., 06/2021

Member, Hsiang-Yuan Hsing, M.S., 06/2020

Member, Hui-Ting Ou, M.S., 01/2020

Member, I-Chen Hsieh, M.S., 07/2018

Member, Ting-Yu Lu, M.S., 07/2018

Member, Hsuan-Yu Shen, M.S., 07/2018

Member, Sheng-Han Lin, M.S., 07/2018

Member, Wan-Chen Hsieh, M.S., 07/2018

Member, Yu-Hsuan Tsai, M.S., 07/2018

Member, Wei-En Weng, M.S., 07/2017

Member, Shu-Wei Kao, M.S., 07/2017

Member, Shu-Ching Tang, M.S., 06/2016

Member, Yi-Chieh Chang, M.S., 07/2016