



Hong Kong RNA Club



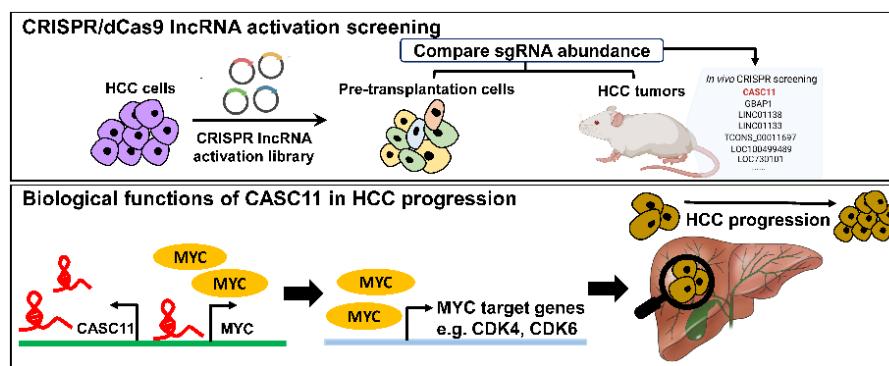
RNA Enthusiast Spotlight (Nov 2022)



Dr. Ceci Lok-Sze Wong is currently a postdoctoral fellow in Dr. Jack Wong's lab in the Department of Pathology, The University of Hong Kong. She was awarded the YS Christabel Lung Scholarship in 2021. She won the Best Presentation Award and Outstanding Poster Presentation Award in the 25th and 23rd Research Postgraduate Symposium, respectively in the LKS Faculty of Medicine, The University of Hong Kong. Ceci can be reached at lokszececi@gmail.com.

Ceci is interested in looking for the “game players” in liver cancer progression in discovering novel therapeutics and diagnostic biomarkers. Current approaches for early liver cancer detection - including ultrasound imaging and the quantification of specific biomarkers in the tumor biopsies - portend an unfavorable prognosis for liver cancer patients co-infected with viral hepatitis. This revelation has prompted Ceci to profile the abundance of liver cancer-specific long noncoding RNAs (lncRNAs) in tumor biopsies, due to their indispensable roles in regulating multiple oncogenic cascades. Considering the unique expression and high tissue specificity of lncRNAs, Ceci is now exploring more lncRNAs as potential RNA-based therapeutic targets or biomarkers that help distinguish different tumor subtypes of liver cancer.

Ceci has recently reported the success of using CRISPR library screening to facilitate the discovery of lncRNA-based therapeutic targets in liver cancer patients. The integrated transcriptomic data and CRISPR-based screening reveal a subset of lncRNAs whose expression levels predict poor clinical outcomes in liver cancer patients. Notably, CASC11, the top candidate in the library screening, was shown to regulate MYC expression in a *cis*-acting manner, which consequently dysregulates a subset of cell cycle regulators and promotes more aggressive tumor behaviors.



Recent representative publications:

Wong LS, Wei L, Wang GC, Law CT, Tsang HC, Chin WC, Ng IO, Wong CM. In vivo genome-wide CRISPR activation screening identifies functionally important long non-coding RNAs in hepatocellular carcinoma. *Cellular and Molecular Gastroenterology and Hepatology* 2022; 14(5):1053-1076

Wong LS, Wong CM. (2021). Decoding the Roles of Long Noncoding RNAs in Hepatocellular Carcinoma. *International*

Journal of Molecular Science. 2021 Mar 19;22(6):3137. (Review)

Currently, Ceci is devising a sequencing platform to profile chromatin-associated lncRNAs in liver cancer. Detailed dissection of individual lncRNAs could hopefully help disentangle the functionality of lncRNAs in liver cancer.

Ceci said that although she has completed her PhD degree, she is still on her mission to learn new things and delve into different aspects of the research area. She added that people might initially not see your heart or understand your intention. But don't let anyone's opinions stop you from pursuing your passions. Keep dreaming big and taking risks to make those dreams happen because it will pay off in the end. Lastly, she added, "do the things we love, do them with integrity and kindness, and be unapologetic about them."

Written by Dr. Ceci Lok-Sze Wong, edited by Hill Lam Lau (HKRNAClub Team)



Dr. Jack Chun Ming Wong is an associate professor in the Department of Pathology at the University of Hong Kong. Please find more information on Dr. Wong's website. <https://www.jackwonglab.com/research>.

Dr. Wong's current research centers on exploring the genetic and epigenetic dysregulation in liver cancer, including DNA methylation, histone modifications, chromatin remodeling, histone chaperones, and 3D genome. Dr. Wong's lab integrated various high-throughput sequencing platforms to profile the liver cancer genome and epigenome. Another key direction in Dr. Wong's lab is to study the deregulation of long-coding RNAs and RNA modifications in liver cancer to identify novel biomarkers and therapeutic targets for liver cancer patients. Dr. Wong is a pioneer in studying RNA m6A modification in human cancers. He discovered the oncogenic role of m6A methyltransferase METTL3 in liver carcinogenesis. This paper published in *Hepatology* in 2018 has received more than 650 citations.



Recent representative publications

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Shen J, Yang C, Zhang MS, Chin WC, Chan FF, Law CT, Wang GC, Cheng CL, Chen M, Wan RT, Wu M, Kuang Z, Sharma R, Lee TK, Ng IO, Wong CC, **Wong CM**. Histone chaperone FACT complex coordinates with HIF to mediate expeditious transcription program to adapt to poorly oxygenated cancers. *Cell Reports* 2022. 38:110304

Shen J, Chen M, Lee D, Law CT, Wei L, Tsang FH, Chin DW, Cheng CL, Lee JM, Ng IO, Wong CC, **Wong CM**. Histone Chaperone FACT complex mediates oxidative stress response to promote liver cancer progression. *Gut* 2020. 69:329-342

Chen M and **Wong CM**. The emerging roles of N6-methyladenosine (m6A) deregulation in liver carcinogenesis. *Mol Cancer* 2020, 19:44, Review

Chen M, Wei L, Law CT, Tsang FH, Shen J, Cheng CL, Tsang LH, Ho DW, Chiu DK, Lee JM, Wong CC, Ng IO, **Wong CM**. RNA N6-methyladenosine methyltransferase-like 3 promotes liver cancer progression through YTHDF2-dependent posttranscriptional silencing of SOCS2. *Hepatology* 2018; 67:2254-2270.

Wong CM, Tsang FH, Ng IO. Non-coding RNAs in hepatocellular carcinoma: molecular functions and pathological implications. *Nat Rev Gastroenterol Hepatol* 2018; 15:137-151. Review.

Dr. Wong's favorite quote is "Research is to see what everybody else has seen, and to think what nobody else has thought." –by Albert Szent-Györgyi (Nobel laureate 1937). Dr. Wong is proud of creating a liberal and inspirational atmosphere where his students can develop their interest in science.

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