

The chemical biological studies of RNA regulatory processes

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Abstract

The study of RNA regulatory functions has become a frontier in life sciences. However, RNA regulatory process is highly complex; beyond the regulation by sequence, behaviors such as RNA modification, structure, and protein interactions play crucial roles in modulating RNA functions and are closely linked to physiological and pathological processes. Detecting RNA from multiple perspectives—including sequence, modification, structure, and protein interactions—to resolve their dynamic patterns is a prerequisite for a comprehensive understanding of RNA regulation. However, current research technologies still have significant room for improvement. Addressing the challenges in the identification and functional study of RNA regulation process, our group focuses on developing RNA chemical biology technologies and exploring their corresponding biomedical applications.

Biography

Dr. Xiaocheng Weng is a Professor at the College of Chemistry and Molecular Sciences, Wuhan University. He also serves as an Adjunct Principal Investigator (PI) at the Taikang Center for Life and Medical Sciences, Wuhan University. He earned his B.S. in Chemistry in July 2002 and his Ph.D. in Chemistry in December 2007, both from Wuhan University. From November 2013 to November 2016, he conducted postdoctoral research at the University of Chicago. His research is dedicated to RNA chemical biology, with a focus on developing technologies for nucleic acid modifications, structures and interactions using chemical probes, alongside their biomedical applications. He has published over 110 papers in prestigious international journals, including *Nature Chemical Biology* and *Nature Communications*. Professor Weng is the recipient of numerous research grants, including the National Natural Science Foundation of China (NSFC) Excellent Young Scientist Fund, an NSFC Major Research Program Key Project, and four NSFC General Projects. He is also a key participant in the NSFC Creative Research Groups (Class B) and Integrated Projects of the Non-coding RNA Major Research Program. His contributions to the field have been recognized with the First Prize of the Hubei Provincial Natural Science Award (twice, in 2010 and 2020, the second contributor) and the title of "Outstanding Young Faculty Member of Wuhan University".