

2023

1.11

(wed.)

12:10  
12:50

12:10-12:15

◆ Introduction

12:15-12:40

◆ Seminar  
(Presentation)

12:40-12:50

◆ Q&amp;A

Online  
(Zoom)Scan here for  
Registration ▶▶[https://temdec-med-kyushu-u-ac-jp.zoom.us/webinar/register/WN\\_ExOumUxKTGOPJ7qVg2z00w](https://temdec-med-kyushu-u-ac-jp.zoom.us/webinar/register/WN_ExOumUxKTGOPJ7qVg2z00w)

Supported by Kyushu University, Q-AOS &amp; TEMDEC

# Development of small molecules targeting RNA

~ Toward the creation of small-molecular tools to modulate RNA function and the drug discovery for RNA targets ~

Chair: **Assoc. Prof. Kun QIAN** (Research Futures Coordinator of Q-AOS)**Key Words**

Chemical biology

Small molecules

RNA

Associate Professor **Asako Murata**

Faculty of Engineering Sciences

Asako Murata is an associate professor at Faculty of Engineering Sciences. From April 2022, she just moved from Osaka University to Kyushu University and started her own lab. In 2001, she graduated from the College of Biology, University of Tsukuba, where she learned neurobiology. In graduate school, at the University of Tokyo, she changed her major and was engaged in organic synthesis of nucleic acid analogs that can be applicable to oligonucleotide therapeutics. After receiving her Ph.D. in 2006, she worked in chemical biology as a postdoctoral fellow in the Department of Biochemistry and Molecular Biology at Baylor College of Medicine in the United States and the Institute for Chemical Research at Kyoto University for four years. In 2010, she started her research on small molecules that bind to nucleic acids (DNA/RNA) at the Institute of Scientific and Industrial Research, Osaka University. She spent 12 years there as a postdoctoral fellow, assistant professor, and associate professor. Currently, her lab is focusing on the development and discovery of small molecules that bind to RNA and modulate its function, aiming for drug discovery for diseases associated with RNA dysfunction.

Since the beginning of COVID-19 pandemic, some scientific terms have become common parlance – PCR, genome sequencing, mutant strains, and so on. Messenger RNA (mRNA) is one of them, and my research focuses on "RNA". We know that DNA carries the genetic information of life. What about RNA? RNA is generated from DNA by a process called transcription. The sequence of DNA (the genetic information) is copied into RNA, and the copied RNA is translated into a corresponding sequence of amino acids to produce proteins. However, not all RNA is translated into proteins. These untranslated RNAs are revealed to have important roles in many biological processes and disease development. I have been working on the development of small molecules that can bind to a specific structure formed in the untranslated region of RNA, aiming for modulating the function of RNA. In this seminar, I would like to introduce examples of these small molecules.