

# Biogenesis and function of circular RNAs

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### Abstract

Circular RNAs are composed of different types of covalently closed, single-stranded RNA molecules. Recent transcriptomic studies have uncovered the widespread expression of circular RNAs (circRNAs) produced from the exon(s) back-splicing of pre-mRNAs. I will discuss both the genome-scale and experimental strategies used to discover and characterize circRNAs, their diversity and biogenesis, as well as how understanding of the production, structure and turnover of circRNAs has allowed the appreciation of their unique cellular functions and potential biomedical applications.

### Biography

Ling-Ling Chen received her BS from Lanzhou University in 2000, and MS from Shanghai Institute of Material Medica, Chinese Academy of Sciences (CAS) in 2003. She then carried out doctoral and post-doctoral work in Biomedical Science at UConn Health, USA with Gordon G. Carmichael from 2004 and 2010. She also completed an MBA degree in Management at the UConn Business School in 2009 and was promoted to Assistant Professor in Residence at UConn in 2010. Chen moved to the Shanghai Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences as an independent PI in 2011 and was promoted to Senior PI in 2017. She was selected as the Howard Hughes Medical Institute (HHMI) International Research Scholar in 2017.

Chen studies long noncoding RNAs (lncRNAs), a giant class of RNA molecules that are emerging as important regulators in gene expression networks. Her group has pioneered methods for studying non-polyadenylated RNAs and discovered widespread expressed snoRNA-related lncRNAs and circular RNAs. In addition to the characterization of their unusual biogenesis pathways, her group discovered that sno-lncRNAs are conspicuously absent from patients with Prader-Willi Syndrome and circular RNAs are involved in innate immunity regulation and related to autoimmune diseases. Her group now continues efforts to elucidate the biogenesis and function of these unconventional regulatory RNAs in different cellular contexts and in relevant human diseases.

Chen serves on Editorial Boards of Cell, Science, Mol Cell, and several other journals. She is the recipient of the Chinese Biological Investigators Society (CBIS) Young Investigator, the L'OREAL China for Women in Science, the Explorer Prize and the Mid-Career Res Award from the RNA Society.