

## Regulation of higher order structures and function of RNA by RNA-binding small molecules

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When we learned central dogma many years ago, RNA was just a blueprint of proteins. However, nowadays, RNAs are recognized as functional molecules to participate in several important biological reactions. ENCODE (the encyclopedia of DNA elements) project revealed that less than 3% of our human genome was eventually translated into proteins, whereas 76% was transcribed into RNA but not translated into proteins. These non-coding RNAs have been appointed to the crucial targets for future drug discovery. MicroRNAs (miRNAs) are typical examples of those functional non-coding RNAs and toxic RNA having long repeat sequences sequestered RNA-binding proteins in the nucleus, which led to the dysfunction of the proteins. In the presentation, our recent studies focused on the modulation of the maturation process of microRNA and the targeting toxic RNAs related to neurological disorders by our RNA-binding small ligand will be discussed. These studies showed that small molecules have much potential to modulate the structure and function of biologically relevant RNAs.