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Human-Specific RNA Metabolism: Mechanisms, Dysregulation, and Disease Implications

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Message from the Guest Editor

RNA metabolism includes the transcription, splicing, modification, transportation, translation, and degradation of RNA molecules. As almost all key elements involved in RNA metabolism, including promoters, splicing signals, and untranslated regions of mRNA, are poorly conserved among different species, our knowledge of animal models cannot be easily applied to humans. Meanwhile, long non-coding RNAs (lncRNAs) and circular RNAs (circRNAs), which are largely non-conserved, are emerging as crucial regulators of many fundamental biological processes; dysregulation of these non-coding RNAs contributes to human diseases ranging from cardiometabolic defects to cancer. The recent discovery that mRNA also undergoes extensive *methylation* modulated by distinct protein regulators, including “writers”, “erasers”, and “readers”, reveals another layer of RNA metabolism affecting human pathophysiology. Given the significance of RNA metabolism and its lack of conservation across species, we urgently need to improve our understanding of human-specific RNA metabolism, from its mechanisms and dysregulation to disease implications.



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Message from the Editor-in-Chief

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