

Special Issue on  
**Posttranscriptional Regulation in Maintenance and  
Differentiation of Stem Cells**

# CALL FOR PAPERS

Pluripotent and adult stem cells have the ability to self-renew and to differentiate into multiple cell lineages in a variety of tissue types, thus making stem cells useful tools for modeling normal development and human disease. Understanding the mechanisms that regulate the establishment, maintenance, and differentiation of stem cells is therefore crucial for the advancement of stem cell-based regenerative medicine and cell-replacement therapies.

While deciphering the transcriptional networks and the mechanisms by which they are governed has been the focus of many stem cell studies, growing evidence suggests that posttranscriptional regulation also contributes to the precise control and maintenance of pluripotency and the developmental plasticity of stem cells. For proper function, stem cells rely on adequate spatiotemporal expression of RNAs that are generated through posttranscriptional regulatory processes such as RNA alternative splicing, polyadenylation, methylation, editing, localization, and stability. Many of these posttranscriptional events are influenced by the presence of *cis*-acting elements located in RNAs and/or *trans*-acting factors such as RNA-binding proteins and noncoding RNAs. Admittedly, RNA-binding proteins are responsible for almost every step in the processing and functional role of cellular RNAs, whereas regulatory noncoding RNAs (including microRNAs, piRNAs, and lncRNAs) have been associated with changes in stability and translation efficiencies of mRNAs involved in stem cell signaling, homeostasis, self-renewal, differentiation, and other stem cell-fate decisions.

Therefore, it is important to improve our understanding of the posttranscriptional events and how the combination of these intracellular pathways contributes to stem cell's identity and function. The gained knowledge will appease some of our current stem cell biology research needs and will serve as a platform for translational approaches.

This special issue is intended to document and present novel research and concepts that advance our understanding of posttranscriptional regulation in stem cell maintenance and differentiation. We welcome submission of high-quality research papers as well as review articles.

Potential topics include but are not limited to the following:

- ▶ Regulation of mRNA splicing in stem cells
- ▶ Regulation of mRNA decay in stem cells
- ▶ Regulation of mRNA translation in stem cells
- ▶ Regulation of mRNA methylation in stem cells
- ▶ RNA editing and alternative polyadenylation in stem cells
- ▶ The role of RNA-binding proteins in stem cell maintenance and differentiation
- ▶ The role of noncoding RNAs (including miRNA, siRNA, piRNA, and lncRNA) in stem cells
- ▶ The regulatory mechanism of noncoding RNAs in stem cells

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/sci/ptr/>.

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