Stem Cells International

Hindawi

Special Issue on

Transcriptional and Genomic Control of Stem Cells in Development and Cancer

CALL FOR PAPERS

Stem cells play important roles in development and cancer. Whereas "normal" stem cells are capable of differentiating into functional cell types during development, the "malignant" form, known as cancer stem cells, is involved in cancer progression and recurrence. Cancer stem cells have lost their ability to differentiate but maintain the ability to undergo self-renewal. Both transcriptional and genomic pathways play important roles in ensuring the normal function of stem cells. At the transcriptional level, sequence-specific transcription factors and coregulators work together to orchestrate the transcriptional landscape of stem cells, which determines the on/off state of target genes, thereby controlling the cell fate of stem cells. At the genomic level, the replication and repair machineries maintain the genomic stability of stem cells. Defects in any of these processes can convert normal stem cells into the malignant form, which ultimately leads to cancer and leukemia.

Regulations of transcription, chromatin remodeling, and genomic instability are at the forefront of contemporary stem cell research. While protein factors are well-known regulators of these processes, noncoding RNAs have recently emerged as a unique class of stem cell modulators. In addition, new technologies such as next-generation sequencing and transcriptome profiling have become important tools in studying the function and regulation of stem cells. This special issue is devoted to the rapid advancements in these areas.

We invite investigators to contribute original research articles as well as review articles that will stimulate and provide new insight into our understanding of the genomic function and regulation of stem cells.

Potential topics include but are not limited to the following:

- Regulation and function of normal and diseased stem cells
- Mechanisms of transcriptional and epigenetic regulation of stem cell function
- Novel function of transcription factors, corepressors, and coactivators
- Characterization of histone modifications and modifying enzymes
- Role of noncoding RNAs
- Novel bioinformatic methods for analyzing the cistrome and transcriptome of stem cells
- Genome instability of stem cells
- Origin of cancer and leukemia stem cells
- Cross talk between genetic and epigenetic factors in stem cell regulation and function

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

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