DEVELOPMENT OF EPIGENETIC DRUGS FOR CANCER THERAPY:
PAST EXPERIENCES, CURRENT STATUS AND FUTURE PERSPECTIVES

Aims & Scope:
It is increasingly accepted that cancer is not only a genetic but also an epigenetic disorder. Epigenetic mechanisms can be understood by several rapid advances, which include DNA methylation, histone modifications, small and non-coding RNAs and chromatin architectures. Misregulation of histone-modifying enzymes and incorrection of chromatin-modifying machineries can lead to improper epigenetic modifications that are critically involved in cancer development. These inducing factors, epigenetic enzymes and modifying machineries, hold great promise as efficient targets for anticancer therapies. A good example of this concept is the inhibitor of a lysine-specific demethylase 1 (LSD1) that can amend drug-insensitive forms of all-trans-retinoic acid (ATRA) to positive treatment of acute myeloid leukemia (AML). To date, four FDA-approved drugs with epigenetic activities have been launched for anticancer therapy: the DNA methyltransferase (DNMT) inhibitors 5-azacytidine (Vidaza) and decitabine (20-deoxy-5-azacytidine, Dacogen) and the histone deacetylase (HDAC) inhibitors suberoylanilide hydroxamic acid (SAHA, Zolinza) and romidepsin (Istodax). It is essential to notice that HDAC could synergistically interact with DNMT in the epigenetic silencing of cancer genes. The principal aim of this thematic issue is to present the up-to-date developments in cancer epigenetics with a focus on drug discovery. An inclusive understanding of the epigenetic regulators of malignant cells will facilitate the fundamental concept of epigenetic cancer therapy and provide novel targets for more effective epigenetic approaches in cancer treatment with advanced specificity.

Key words: Epigenetic, cancer therapy, anticancer drug development, epigenetic modification, epigenetic enzyme, DNA methylation, histone modification

Subtopics:
1. Current status of epigenetics and anticancer drug discovery
2. Targeting epigenetics for cancer therapy
3. Mis-regulation of epigenetic modification and cancer development
4. Histone modification as an approach for anticancer drug development
5. Targeting DNA methylation as an approach for anticancer drug development
6. Notification of epigenetic enzymes for targeted anticancer agent development
Schedule:

Manuscript submission deadline: **July 15, 2014**

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Revision Due: **October 15, 2014**

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Final manuscripts due: **November 20, 2015**