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Epigenetic tools (The Writers, The Readers and The Erasers) and their implications in cancer therapy

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Abstract:

Addition of chemical tags on the DNA and modification of histone proteins impart a distinct feature on chromatin architecture. With the advancement in scientific research, the key players underlying these changes have been identified as epigenetic modifiers of the chromatin. Indeed, the plethora of enzymes catalyzing these modifications, portray the diversity of epigenetic space and the intricacy in regulating gene expression. These epigenetic players are categorized as *writers*: that introduce various chemical modifications on DNA and histones, *readers*: the specialized domain containing proteins that identify and interpret those modifications and *erasers*: the dedicated group of enzymes proficient in removing these chemical tags. Research over the past few decades has established that these epigenetic tools are associated with numerous disease conditions especially cancer. Besides, with the involvement of epigenetics in cancer, these enzyme and protein domains provide new targets for cancer drug development. This is certain from the volume of epigenetic research conducted in universities and R&D sector of pharmaceutical industry. Here we have highlighted the different types of epigenetic enzymes and protein domains with an emphasis

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