



The epigenetic machinery

Figure 1. Genetic mutations of epigenetic modifiers in cancer. The drawing shows the input of epigenetic processes in specifying gene expression patterns. Recent whole-exome sequencing studies show that mutations in various classes of epigenetic modifiers are frequently observed in many types of cancers, further highlighting the cross talk between genetics and epigenetics. Examples of some, but not all, of these mutations are illustrated here and listed in Table 2. The mutations of epigenetic modifiers potentially cause genome-wide epigenetic alterations in cancer, but, save for isocitrate dehydrogenase (IDH) mutations as discussed in the text, these have yet to be shown on a genome-wide scale. Understanding the relationship of genetic and epigenetic changes in cancer will offer novel insights for cancer therapies. MBDs, methylcytosine-binding proteins; PTM, posttranslational modification. (Adapted from You and Jones 2012.)