



Figure 16. The DNA (de)methylation cycle. DNMTs convert unmodified cytosine nucleotides into 5mC, which can be further oxidized by the TET (ten eleven translocation) enzymes to generate 5-hydroxymethylcytosine (5hmC), 5-formylcytosine (5fC), and 5-carboxylcytosine (5caC). The combined action of thymine-DNA glycosylase (TDG) and the base excision repair (BER) machinery on 5caC sites results in unmodified cytosine. Although there are several readers for 5mC (e.g., MeCP2, MBDs), a “specific” binding protein for 5hmC remains unknown. (Y Zhang, pers. comm.)