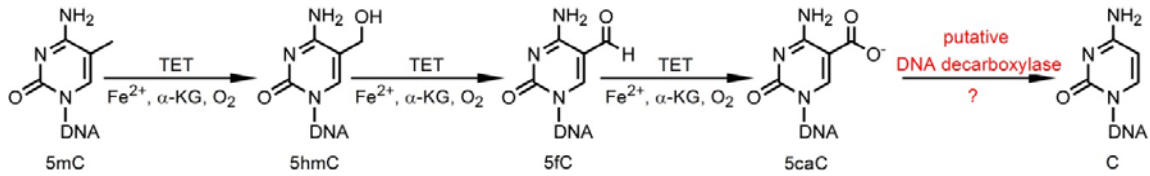


Supplementary information, Figure S1

A



B

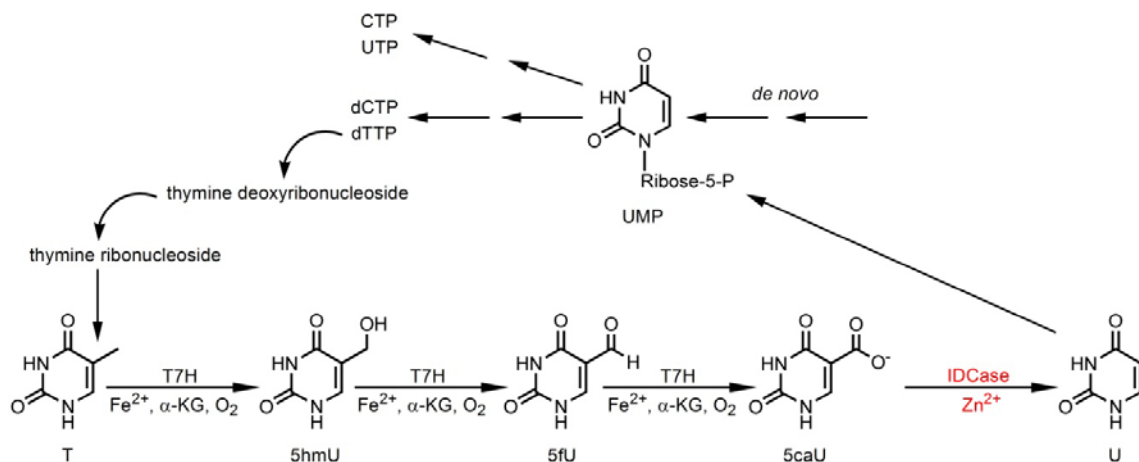


Figure S1 The chemistry for the conversion of 5mC to C in mammals is very similar to that for the conversion of T to U in the thymidine salvage pathway in fungi. **(A)** The proposed active 5mC demethylation pathway in mammals. The TET proteins are able to sequentially oxidize 5mC to 5hmC, 5fC and 5caC, which requires oxygen, Fe^{2+} and $\alpha\text{-KG}$ as cofactors. 5caC could be decarboxylated to C by a putative DNA decarboxylase. **(B)** The thymidine salvage pathway in some fungi. Thymine-7-hydroxylase (T7H) can sequentially oxidize T to 5hmU, 5fU and 5caU, which also requires oxygen, Fe^{2+} and $\alpha\text{-KG}$ as cofactors. IDCCase can catalyze the decarboxylation of 5caU to U, and requires Zn^{2+} as a cofactor.