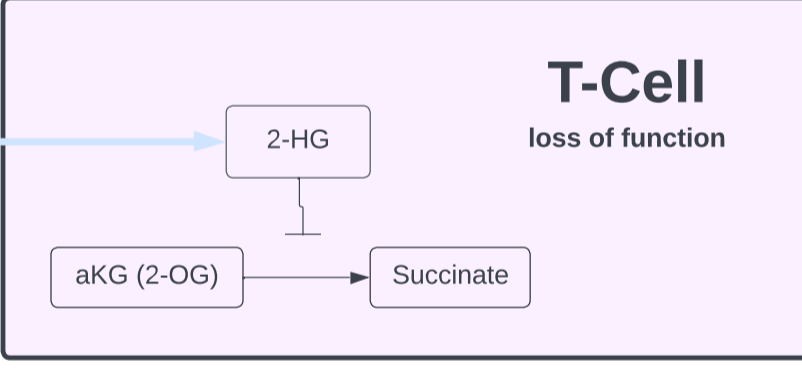
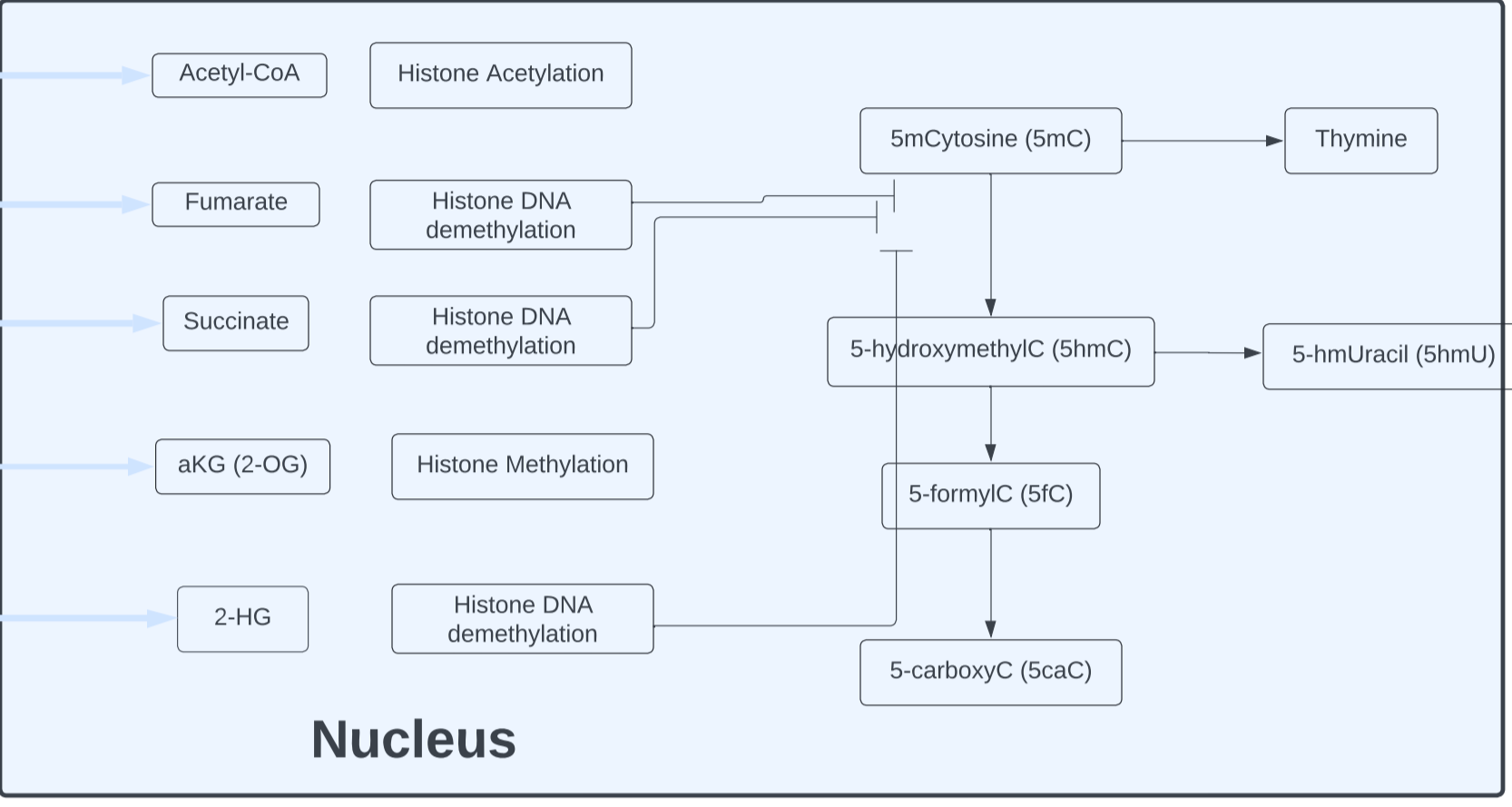
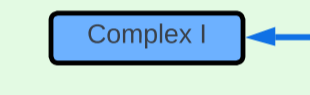
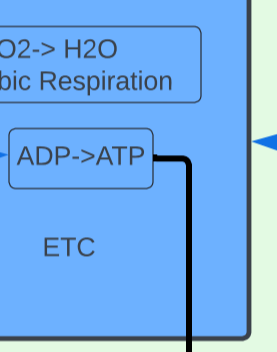


**Mitochondrial Functions**  
 ATP synthesis  
 Cytochrome C / caspase activation - cell death  
 Peroxide generation - thiol oxidation - gene expression  
 AMPK activation - catabolic regulation  
 mtDNA - inflammation  
 Chromatin modifications / DNA methylation / PTM - affecting cell function and fate

HIF-1 has been found to regulate the shift within tumor cells to anaerobic metabolism and to activate VEGF and angiogenesis, downregulation of the HIF-1 complex may suppress cancer progression.



**Expanded TCA Cycle**



**Cytosol**

**Mitochondria**

**Cytosol**

**Cytosol**

Hypusine only in eIF5A-1 Cell Proliferation Factor RNA translation

ATP - ADP Shuttle Muscle Contraction

PhosphoCreatine pCr

Creatinine