

[Open Peer Review on Qeios](#)

Thymidine Kinase, Mitochondrial

National Cancer Institute

Source

National Cancer Institute. *Thymidine Kinase, Mitochondrial*. NCI Thesaurus. Code C38513.

Expressed (as long 266-aa 31-kDa precursor and short 235-aa alternative isoforms) predominantly in liver, pancreas, muscle, and brain by human TK2 Gene (DCK/DGK Family), Thymidine Kinase 2 is a monomeric mitochondrial deoxyribonucleoside kinase that phosphorylates thymidine, deoxycytidine, and deoxyuridine, as well as anti-viral and anti-cancer nucleoside analogs. In nonreplicating cells, mtDNA synthesis depends on 2 salvage pathway deoxyribonucleoside kinases, DGK and Thymidine Kinase 2. Separated from cytosolic dNTPs by the mitochondria inner membrane, mitochondrial dNTPs are maintained by transporter import or deoxynucleoside salvaging; de novo dNTP synthetic enzymes appear not to be present in mitochondria. (NCI)