# mt ADENOSINE 5’-TRIPHOSPHATE SYNTHASE

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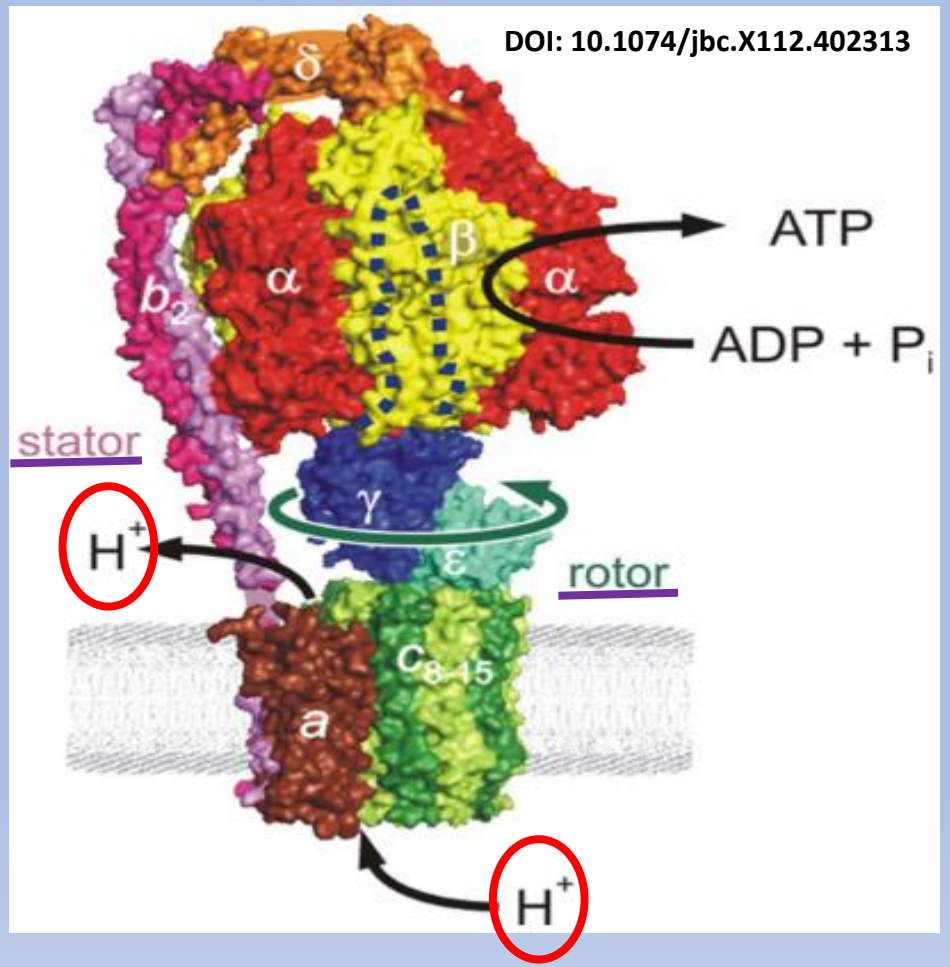
**proton powered ATPase (there isn’t other kind)**

**deuterons break this mt enzyme**

**Reading:**
**https://doi.org/10.1186/1742-4682-4-9**




**it produces ATP from ADP and inorganic phosphate**

**protons are consequently used for matrix water production with $O_2$ after being transferred in the mt matrix**

# ADENOSINE 5’-TRIPHOSPHATE SYNTHASE



- the ATPase stator-rotor system is a proton-fueled internal combustion nano-engine

- ATPase is powered by the kinetic energy of the universal proton mass constant in quantum physics, determined by monoallelic genetic inheritance (maternal cloning) with regard of its proton tunnel proteins with no evolutionary footprints described

# DEUTERONS BREAK DOWN ATPase

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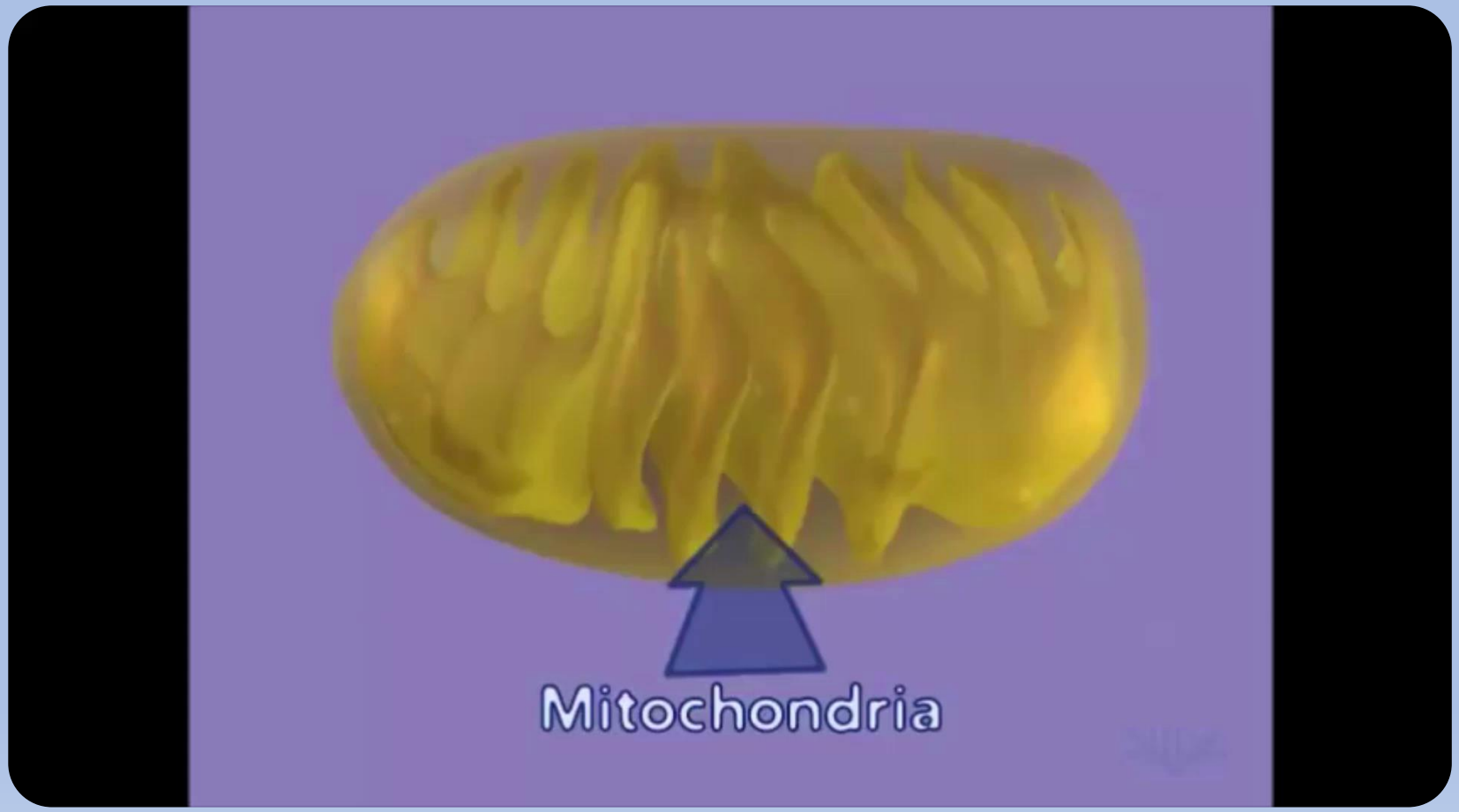
## see in motion how a deuteron breaks down ATPase:

https://drive.google.com/file/d/1LBr1OW1aItDY1Z8d0pNpegrvfPDKnMlS/view?usp=sharing

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https://youtu.be/3y1dO4nNaKY?si=DBJLTIUbG1ycAqkr (share and cite, modified by Eszter Anna Boros for educational purposes)

# ATP SYNTHASE – STRUCTURE/GENETICS



- the same structure of ATPase nanomotors are present in all kingdoms of life[1]

- human mitochondria carry a single intron-free circular DNA with 16,568 basepairs[2, 3] and 37 genes that code 13 proton tunneling proteins

# MITOCHONDRIAL PROTON TUNNELS BY

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mitochondrial DNA (mtDNA) coded proton tunneling ATP synthase fueling proteins:

1 ATP synthase, Fo complex V subunit 8

2 ATP synthase, Fo complex V subunit 6

3-5 Cytochrome c oxidase, subunits 1-3 (complex IV)

6 Cytochrome b (complex III)

7-13 NADH dehydrogenase subunits 1-4L-6 (complex I)

**these proteins have not been and can not be altered by evolution as they are monoallelic clones of maternal inheritance**

# ATP SYNTHASE – GENETICS/PROTEOMICS



- mitochondria-encoded proteins inherently gate out deuterons due to their size to supply protons only for ATPase

- the inner mitochondrial membrane is designed to harvest protons from nutrients by its NADH reductases (7-13) for the mitochondrial matrix compartment

# ATP SYNTHASE – FUNCTION

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- ATP synthase and/or decoupling proteins (brown adipose tissue) tunnel protons back into the matrix to react with oxygen during metabolic (living) water formation

- matrix water is likely the most deuterium-depleted (deupleted) water source for highly differentiated eukaryotic cells during energy and molecule production

# ATPase PROTON TUNNELING IS PRESERVED



- mitochondrial proton tunneling is preserved in biology due to monoallelic asexual maternal inheritance by the **13 proteins** coded by mtDNA

- all human mitochondria carried by the male gamete (sperm cell) are destroyed by the female gamete (ovum or egg cell) via its Corona Radiata and Zona Pellucida upon fertilization for the zygote to survive

# mtATPase CAN NOT ADAPT TO DEUTERIUM



- humans adapted and utilize mitochondria as preferential ketosis powered natural carnivores
- human mitochondria can not adapt to high deuterium containing refined sugars and plant-based nutrients
- deuterium depletion is a shared biological responsibility among prokaryote gut microbes and epithelial cells[1]