

High-Resolution respirometry of human heart biopsies

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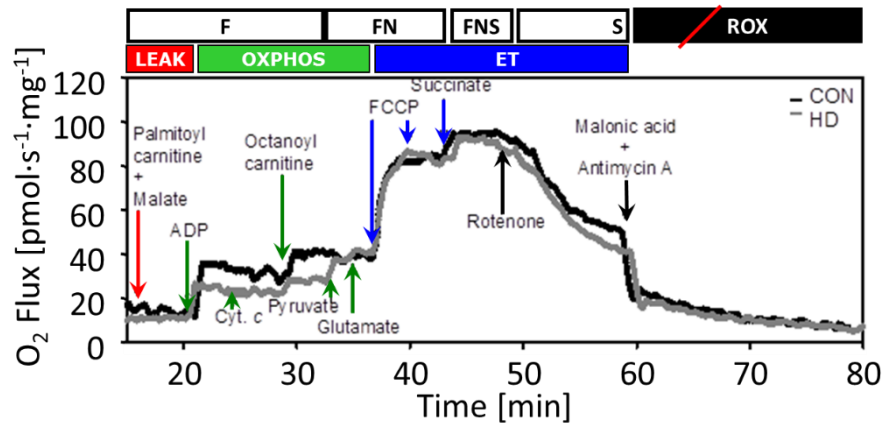
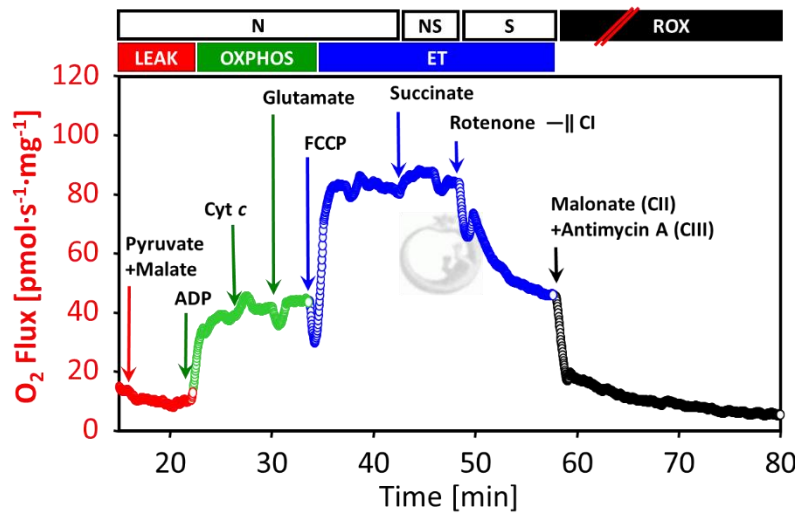
Mitochondrial respiratory control and early defects of oxidative phosphorylation in the failing human heart

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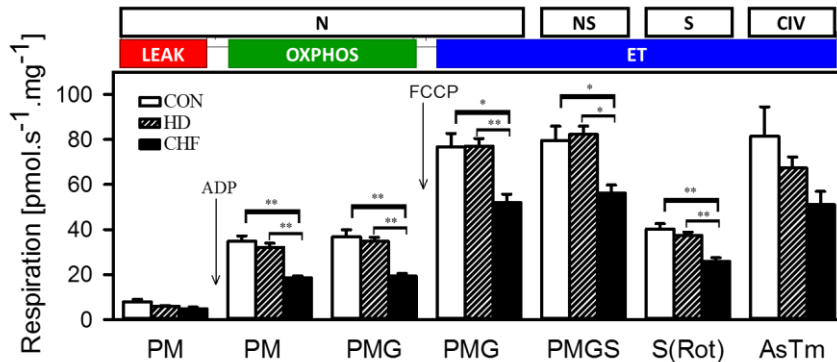
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Human heart: OXPHOS analysis by High-Resolution Respirometry

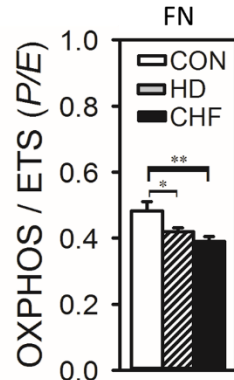


Reference: Lemieux H, Semsroth S, Antretter H, Höfer D, Gnaiger E (2011) Mitochondrial respiratory control and early defects of oxidative phosphorylation in the failing human heart. *Int J Biochem Cell Biol* 43:1729–38.

### Chronic heart failure: General loss of OXPHOS capacity (mt-density)

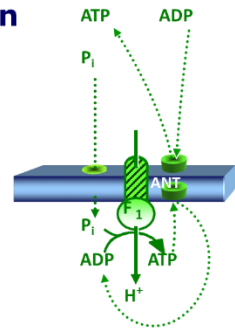


### Heart disease and chronic heart failure: Defect of the phosphorylation system

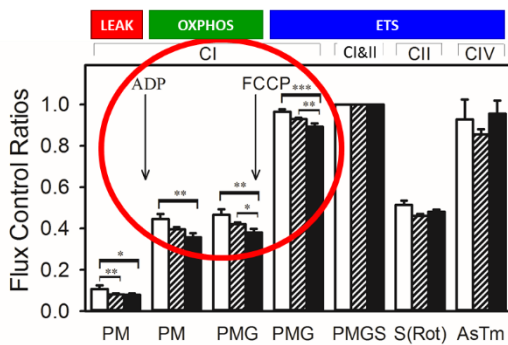


#### Phosphorylation system:

- ATP synthase
- Adenine nucleotide translocase
- Inorganic phosphate transporter



### Chronic heart failure: Specific defect of NADH-OXPHOS and ET capacity

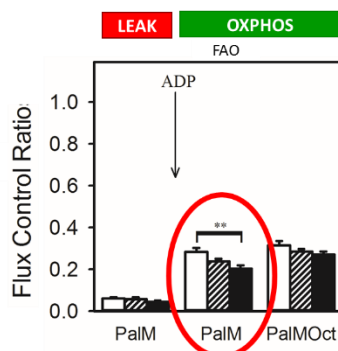


#### NADH-linked capacity (CI-linked)

Pyruvate & Glutamate & Malate



### Chronic heart failure: Deficiency of fatty acid oxidation capacity (FAO)



#### Fatty acid oxidation (FAO) capacity

Palmitoylcarnitine & Malate

