

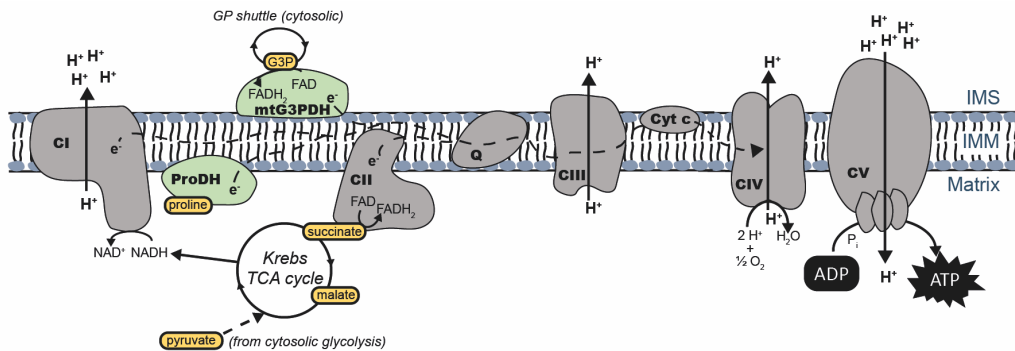


Mitochondrial (dys)function at high and low temperature extremes – complex I as a common culprit?

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Thermal constraints on aerobic metabolism have been observed in ectothermic animals at both high and low temperatures. We examined the potential relation between mitochondrial thermal adaptations and organismal thermal tolerance by measuring mitochondrial function in *Drosophila* species with different thermal tolerances using a substrate-uncoupler-inhibitor-titration protocol. Complex I-supported respiration is challenged at both low and high temperatures, and the species-specific temperature where this occurs correlates strongly with thermal tolerance (CT_{min} and CT_{max}). Mitochondrial respiration is restored when alternative substrates are provided (proline, succinate and glycerol-3-phosphate), and neuromuscular impairment and mortality at temperature extremes may therefore be more related to failure of complex I-supported respiration than rates of fully stimulated respiration.



Friday, April 28th from 13.00 to 14.00 in the Zoophysiology Seminar Room (1131-127)