

ORIGINAL Article

On the Origin of Hemoglobin Cooperativity under Non-equilibrium Conditions

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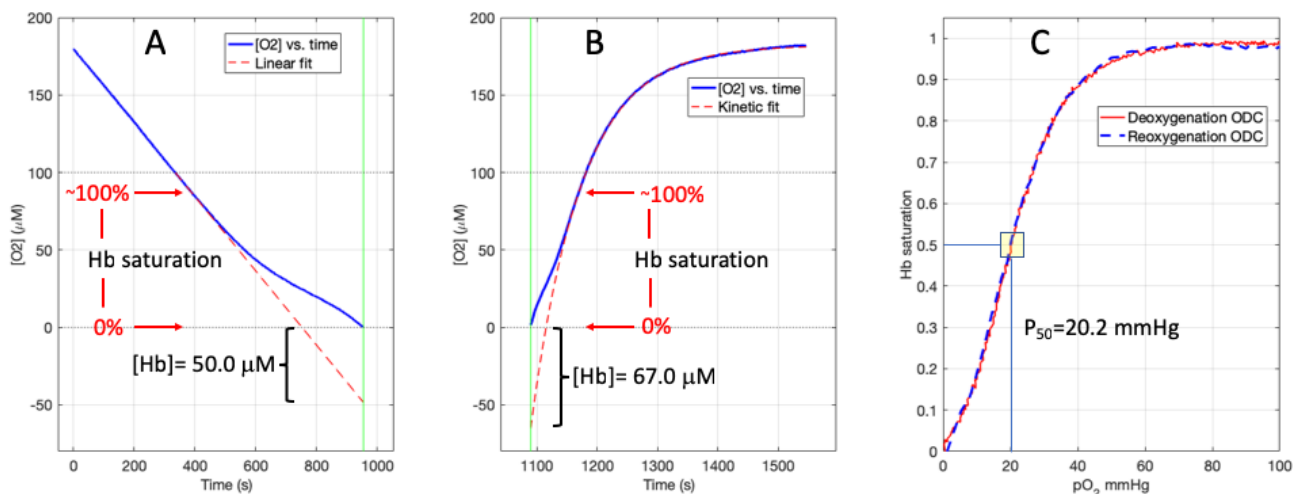
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SUPPLEMENTARY MATERIAL



Example of graphic derivation of Hb non-equilibrium ODC.

A. Deoxygenation phase with a fit of the linear part of the trace solely due to O₂ consumption by mitochondria. Extrapolation of the fit to the time in which all the O₂ is used up (vertical green line) allows us to recognize the sigmoidal curve of Hb deoxygenation as the difference

between the observed curve (blue line) and the linear fit (dashed red line). **B.** Reoxygenation phase with a kinetic fit of the part of the curve that is solely due to the back diffusion of O₂ in the cell. Extrapolation of the fit to the time in which the cell is reopened (vertical green line) allows us to recognize the sigmoidal curve of Hb reoxygenation as the difference between the observed curve (blue line) and the kinetic fit

(dashed red line). C. Deoxygenation and reoxygenation non-equilibrium ODC's derived as point-by-point difference between the O₂ traces and the extrapolated fits, as shown in panels A and B. Since the reoxygenation of Hb occurs more rapidly than its deoxygenation, the reoxygenation ODC (dashed blue line, panel C) is based on fewer experimental points than the deoxygenation ODC (continuous red line, panel C).

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