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Aug 03, 2016 · Interplay between up-regulation of cytochrome-c-oxidase and hemoglobin oxygenation induced by near-infrared laser Xinlong Wang , 1, \* Fenghua Tian , 1, \* Sagar S. Soni , 1 F. Gonzalez-Lima , a, 2 and Hanli Liu b, 1

Cited by: 81 Author: Xinlong Wang, Fenghua Tian, Sagar S. S...  
Publish Year: 2016

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Within the wavelength spectrum of approximately 620–1100 nm, the light absorption by tissue chromophores is weak. 7 The primary mechanism of photobiomodulation rests on photon absorption by cytochrome c oxidase (CCO), 8 which is the terminal enzyme in the mitochondrial respiratory chain that plays a key role in neuronal oxygen utilization for energy metabolism. 9 The greater the oxidized CCO increases, the greater oxygen consumption ...

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**Manuscript NO:** 56088

**Manuscript Type:** OPINION REVIEW

**Regulation of cytochrome c oxidase contributes to health and optimal life**

Kadenbach B. Regulation of cytochrome c oxidase

Bernhard Kadenbach

**Abstract**

The generation of cellular energy in form of ATP occurs mainly in mitochondria by oxidative phosphorylation. Cytochrome c oxidase (CytOx), the oxygen accepting and rate-limiting step of the respiratory chain, regulates the supply of variable ATP demands in cells by the “allosteric ATP-inhibition of CytOx”. This mechanism is based on inhibition of oxygen uptake of CytOx at high ATP/ADP ratios and low ferrocytochrome c concentrations in the mitochondrial matrix *via* cooperative interaction of the two substrate binding sites in dimeric CytOx. The mechanism keeps mitochondrial membrane potential  $\Delta\Psi_m$  and ROS formation at

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**Cited by:** 84

**Author:** Xinlong Wang, Fenghua Tian, Sagar S. ...

**Publish Year:** 2016

## Cytochrome c oxidase biogenesis: New levels of regulation ...

<https://iubmb.onlinelibrary.wiley.com/doi/full/10.1002/iub.86>

**Cytochrome c oxidase (COX)** or complex IV of the **mitochondrial respiratory chain** plays a fundamental role in energy production of aerobic cells. This multimeric enzyme of the inner mitochondrial membrane catalyzes the last step of respiration, the transfer of electrons from **cytochrome c** to **molecular oxygen**.

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**Publish Year:** 2008

## Interplay between up-regulation of cytochrome-c-oxidase ...

<https://www.nature.com/articles/srep30540>

Aug 03, 2016 · Kolyva, C. et al. **Cytochrome c oxidase** response to changes in cerebral oxygen delivery in the adult brain shows higher brain-specificity than haemoglobin. *NeuroImage* 85 Pt 1,