



Research article

The membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance and the evolution based biological mechanism of oxygen utilization - ATP making bio energy systems

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Abstract:

It should be said that the evolution based biological mechanism of oxygen utilization -ATP making bio energy systems had been connected with these processes as shift from the slow developed bio energy accumulating regulations of early evolution times in the form as “Donators as water molecules + ADP + Pi + H⁺ + nH + memb.space = ATP + nH + O₂ formation and the shortage of membrane redox potentials three - state line system, lack of O₂ acceptor utilization regulations “to more powerful energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as O₂ + ADP + Pi + H⁺ + nH + memb.space = (ATP + heat energy) + H₂O + nH + matrix + CO₂”.

The appearance of mitochondrial power systems in the form as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as O₂ + ADP + Pi + H⁺ + nH + memb.space = (ATP + heat energy) + H₂O + nH + matrix + CO₂” (Ambaga and Tumen-Ulzii, 2015) had give to organisms the



possibility to conduct the evolution based biological functions of oxygen utilization - ATP making bio energy regulations.

As cyanobacteria proliferated the world began to fill with O_2 to the consternation of those organisms that found it poisonous, but the appearance of more powerful energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” “had served the role of a more efficient way to produce energy by usind of oxygen and preventing the toxic effects of oxygen.

In such way had been appeared an entirely new type of cell is known as a eukaryote with systems, containing the “Donators + membrane redox potentials three - state line system + $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” bio energy energy - ATP making systems.

Before the appearing of mitochondria - based bio energy systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” (Ambaga and Tumen-Ulzii, 2015), the oxygen molecules was enemy in relating to biological systems, but when had been appeared the evolution based biological mechanism of oxygen utilization inside membrane redox potentials three - state line system, oxygen became unseparable member of ATP making bio energy systems.

The appearance of mitochondria-based power systems in the form as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” (Ambaga and Tumen-Ulzii, 2015) had give to organisms the possibility to avoid the toxic effects of oxygen and develop the evolution based biological mechanism of oxygen utilization -ATP making bio energy systems . Copyright © WJSRR, all rights reserved. USA

Key words: the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance, evolution based biological mechanism of oxygen utilization - ATP making bio energy systems.

INTRODUCTION

For two billion years bacterial organisms were the only forms of Archaean world life with the slow developed bio energy accumulating systems of early evolution times in the form as “Donators as water molecules + $ADP + Pi + H^+ + nH + memb.space = ATP + nH + O_2$ formation and the shortage of membrane redox potentials three - state line system, lack of O_2 acceptor utilization regulations”.

It should be said that evolution based biological mechanism of of oxygen utilization had been connected with these processes as shift from the slow developed bio energy accumulating regulations of early evolution times in the form as “Donators as water molecules + $ADP + Pi + H^+ + nH + memb.space = ATP + nH + O_2$ formation and the shortage of membrane redox potentials three - state line system, lack of O_2 acceptor utilization regulations“ to



more powerful energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ”.

It would be more interesting establish the relationship between the formation of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance and the appearance of the evolution based biological mechanism of oxygen utilization – ATP making bio energy systems.

Results and conclusion

For two billion years bacterial organisms were the only forms of Archaean world life with the slow developed bio energy accumulating systems of early evolution times in the form “Donators as water molecules +ADP + Pi + $H^+ + nH + memb.space = ATP + nH + O_2$ formation and the shortage of membrane redox potentials three - state line system, lack of O_2 acceptor utilization regulations”.

They lived, they reproduced, but they didn't show any particular inclination to move on to another, more challenging level of existence (Bill Bryson, A Short History of Nearly Everything) because of the slow developed bio energy accumulating systems of early evolution times in the form as “Donators as water molecules +ADP + Pi + $H^+ + nH + memb.space = ATP + nH + O_2$ formation and the shortage of membrane redox potentials three - state line system, lack of O_2 acceptor utilization regulations”.

Beside, one reason life took so long to grow complex was that the world had to wait until the simpler organisms had oxygenated the atmosphere sufficiently.

It took about two billion years, roughly 40 percent of Earth's history, for oxygen levels to reach more or less modern levels of concentration in the atmosphere (Bill Bryson, A Short History of Nearly Everything).

It should be said that the evolution based biological mechanism of oxygen utilization –ATP making bio energy systems had been connected with these processes as shift from the slow developed bio energy accumulating regulations of early evolution times in the form as “Donators as water molecules + ADP + Pi + $H^+ + nH + memb.space = ATP + nH + O_2$ formation and the shortage of membrane redox potentials three - state line system, lack of O_2 acceptor utilization regulations “to more powerful energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ”.

As cyanobacteria proliferated the world began to fill with O_2 to the consternation of those organisms that found it poisonous, but the appearance of more powerful energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” had served the role of a more efficient way to produce energy by usind of oxygen and preventing the toxic effects of oxygen.

The energy accumulating systems as “Donators (glucose,aminoacids,fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” had been played the role of converting the toxic oxygen to very useful for any forms of organisms



oxygen as very important member of abovementioned reaction medium and it was became impossible to maintain any forms of life processes without oxygen.

In such way had been appeared an entirely new type of cell is known as a eukaryote with systems, containing the “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” bio energy energy –ATP making systems.

Before the appearing of mitochondria – based bio energy systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” (Ambaga and Tumen-Ulzii, 2015), the oxygen molecules was enemy in relating to biological systems, but when had been appeared the evolution based biological mechanism of oxygen utilization inside membrane redox potentials three - state line system, oxygen became unseparable member of ATP making bio energy systems.

The appearance of mitochondria - based power systems in the form as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” (Ambaga and Tumen-Ulzii, 2015) had give to organisms the possibility to avoid the toxic effects of oxygen and develop the evolution based biological mechanism of oxygen utilization - ATP making bio energy systems.

In such way, mitochondria as one of very important member of powerful energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ” had started manipulate oxygen in a way that liberates energy from foodstuffs.

Without this mitochondria - based energy accumulating systems as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as $O_2 + ADP + Pi + H^+ + nH + memb.space = (ATP + heat energy) + H_2O + nH + matrix + CO_2$ ”, life on Earth today would be nothing more than a sludge of simple microbes.

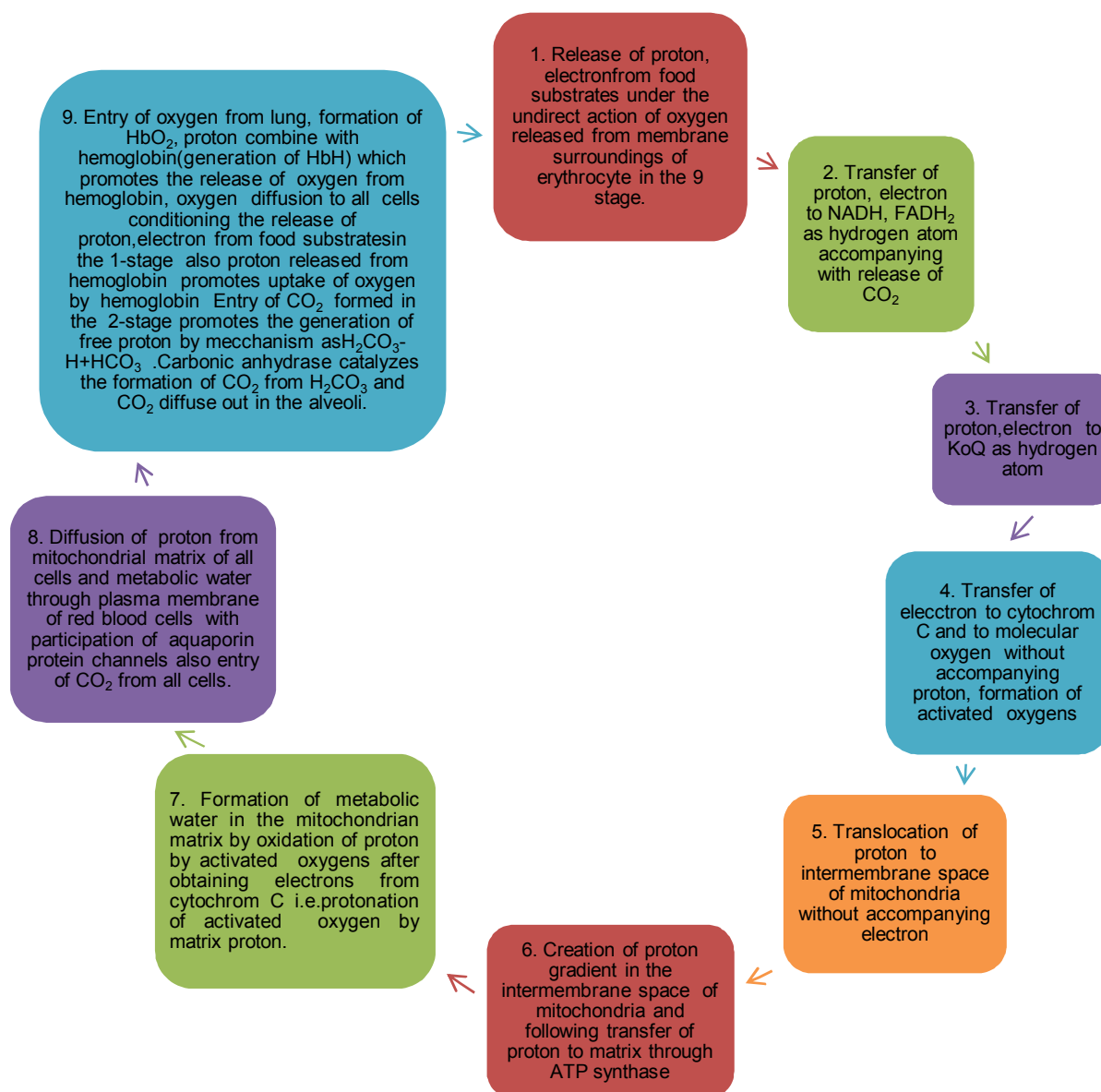


Figure 1. The membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body.

1-th stage of the full 9 stepped cycle of proton conductance inside human body is distinguished by release of proton, electron from food substrates (carbohydrate, amino acids, fatty acids), under the indirect action of oxygen, which have been released from membrane surroundings of erythrocyte in the 9-th stage of full cycle, from this stage started the proton conductance within cycle.

2-th stage of the full 9 stepped cycle of proton conductance inside human body is distinguished by transfer of proton, electron to NADH, FADH₂ as hydrogen atom accompanying with release of CO₂, by which stage continued the proton conductance within cycle.

4-th stage of the full 9 stepped cycle of proton conductance inside human body is distinguished by transfer of electron to cytochrom C without accompanying proton and followed by transfer of electron to molecular oxygen.



Also 7-th stage of the full 9 stepped cycle of proton conductance inside human body is distinguished by formation of metabolic water in the mitochondrian matrix by oxidation of proton by activated oxygens i.e, by protonation of activated oxygen by matrix proton.

9-th stage of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body is distinguished by entry of oxygen from lung, formation of HbO₂, proton combine with hemoglobin (generation of HbH) which promotes the release of oxygen from hemoglobin, oxygen diffusion to all cells conditioning the release of proton, electron from food substrates.

The appearance of mitochondrial power systems in the form as “Donators (glucose, aminoacids, fatty acids) + membrane redox potentials three - state line system + acceptor as O₂ + ADP + Pi + H⁺ + nH + memb.space = (ATP + heat energy) + H₂O + nH + matrix + CO₂” (Ambaga and Tumen-Ulzii, 2015) had give to organisms the possibility to conduct the evolution based biological functions of oxygen utilization - ATP making bio energy regulations.

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