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## THE NEW CONCEPTION ABOUT EXISTING OF THE FULL 9 STEPPED CYCLE OF PROTON, ELECTRON CONDUCTANCE INSIDE HUMAN BODY

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### ABSTRACT

The new conception relating to existence of the membrane redox potential three state dependent 9 stepped full cycle of proton conductance eventually describes the continuity of proton conductance inside human body, starting from food substrates, containing sum of electron, protons, ending by erythrocyte membrane surroundings containing last portions of protons, released from food under action of oxygens passing previous 9 stages. The new conception relating to existence of the membrane redox potential three state dependent 9 stepped full cycle of proton conductance have been included these processes as electron transfer with the transfer of protons ( $H^+$  ions) across a membrane with using of three proton pumps - heart of the electron transport process as I, III, and IV complexes, resulting to transmembrane proton gradient, which is used to produce useful biological works. At first we had been succeeded to find the end 9-th stage of the full closed cycle of electron, proton conductance, which basic features may be described as 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 in the 1-stage also proton released from hemoglobin promotes uptake of oxygen by hemoglobin,  $CO_2$  promotes the generation of free proton by mechanism as  $H_2CO_3$ ,  $H+HCO_3$ , arbonicanhydrase catalyzes the formation of  $CO_2$  from  $H_2CO_3$  and  $CO_2$  diffuses out in the alveoli. In this connection it was became clear that the 8-th stage of the full closed cycle had been distinguished by the diffusion of three important factors as protons from mitochondrial matrix of all cells by sodium/proton antiporter mechanism, and in the form of  $HCO_3$  and metabolic water through plasma membrane of red blood cells with participation of aquaporin protein channels, also entry of  $CO_2$  formed in the 2-stage of all cells and entry of oxygen from lung.

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### INTRODUCTION

It was interesting to give the answer to the principally important questions relating to as how protons made closed repeated movement by circulating through closed circle, accompanied by these processes as electron transfer with the transfer of protons ( $H^+$  ions) across a membrane, through three proton pumps - the heart of the electron transport process, as I, III, and IV complexes, resulting to trans membrane proton gradient, which is used to produce useful work. During our investigation we had been succeeded to find the three stages of the full closed cycle of electron, proton conductance, which

features may be described as release of proton, electron from food substrates under the un direct action of oxygen released from membrane surroundings of erythrocyte in the 9 stage and, the transfer of proton, electron to NADH,  $FADH_2$  with release of  $CO_2$  in Krebs cycle, and transfer of electron to Ko Q with the transfer of protons across a membrane to inter membrane space.

### RESULTS AND DISCUSSION

By our suggestion, the evolution history of development of life processes in our planet during last billion year should build the full closed cycle of protons, which have been included a these processes as electron transfer with the transfer of protons ( $H^+$  ions) across a membrane with using of three proton pumps

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- heart of the electron transport process as I, III, and IV complexes, resulting to transmembrane proton gradient, which is used to produce useful biological works. At first time, we revealed the two stages and parameters of closed cycle of proton conductance inside human body, it was first and 9-th stages. In this connection, we proposed that the full 9 stepped cycle of proton conductance inside human body starts from release of proton, electron from food substrates under the un direct action of oxygen released from membrane surroundings of erythrocyte in the 9 stage. Meanwhile, we had been succeeded to find the end stage of the full closed cycle of proton conductance, which basic features may be described as 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 in the 1-stage also proton released from hemoglobin promotes uptake of oxygen by hemoglobin, CO<sub>2</sub> promotes the generation of free proton by mechanism as H<sub>2</sub>CO<sub>3</sub>.H + HCO<sub>3</sub>, carbonic anhydrase catalyzes the formation of CO<sub>2</sub> from H<sub>2</sub>CO<sub>3</sub> and CO<sub>2</sub> diffuse out in the alveoli. After this, it was became clear that the 8-th stage of the full closed cycle have been distinguished by the diffusion of three important factors as protons from mitochondrial matrix of all cells by sodium/proton antiporter mechanism, and in the form of HCO<sub>3</sub> and metabolic water

through plasma membrane of red blood cells with participation of aquaporin protein channels, also entry of CO<sub>2</sub> formed in the 2-stage of all cells and entry of oxygen from lung.

**In the framework of biological events as “the membrane redoxy potential three state dependent 9 stepped full cycle of proton conductance” would be conducted a following processes as:**

1. **First stage** - Release of proton, electron from food substrates under the undirect action of oxygen released from membrane surroundings of erythrocyte in the 9 stage
2. **Second stage** - Transfer of proton, electron to NADH, FADH<sub>2</sub> with release of CO<sub>2</sub> in Krebs cycle
3. **Third stage** - Transfer of electron to KoQ with the transfer of protons across a membrane to intermembrane space
4. **Fourth stage** - Transfer of electron to cytochrom C and oxygen with the transfer of protons across a membrane to intermembrane space
5. **Fifth stage** - Formation of metabolic water in the mitochondrian matrix by oxidation of proton by molecular oxygens i.e, by protonation of molecular

oxygen by matrix proton with participation cytochrome C oxidase within complex IV

6. **Sixth stage** - Final creation of proton gradient in the mitochondrial intermembrane space with participation of complex I, III, IV
7. **Seventh stage** - Transfer of proton to mitochondrial matrix through ATP synthase with synthesis of ATP and generation of heat energy
8. **Eighth stage** - Diffusion of three important factors as protons from mitochondrial matrix of all cells by sodium/proton antiporter mechanism, and in the form of  $\text{HCO}_3^-$  and metabolic water through plasma membrane of red blood cells with participation of aquaporin protein channels, also entry of  $\text{CO}_2$  formed in the 2-stage of all cells and entry of oxygen from lung
9. **Ninth stage** - 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 in the 1-stage also proton released from hemoglobin promotes uptake of oxygen by hemoglobin,  $\text{CO}_2$  promotes the generation of free proton by mechanism as  $\text{H}_2\text{CO}_3 \cdot \text{H} + \text{HCO}_3^-$ , carbonic anhydrase catalyzes the formation of  $\text{CO}_2$  from  $\text{H}_2\text{CO}_3$  and  $\text{CO}_2$  diffuse out in the alveoli. In such way, the new conception relating to existence of the membrane redox potential three state dependent 9 stepped full cycle of proton conductance eventually describes the continuity of proton conductance inside human body, starting from food substrates, containing sum of electron, protons, ending by erythrocyte membrane surroundings containing last portions of protons, released from food under action of oxygens passing previous 9 stages.

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