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RESEARCH ARTICLE

THE EVOLUTION SIGNIFICANCE OF THE MEMBRANE THREE STATE DEPENDENT REGULATIONS AND THE FULL 9 STEPPED CYCLE OF PROTON CONDUCTANCE

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ABSTRACT

The evolution significance of the membrane three state dependent regulations appeared in the three domain of life as Archaea, Bacteria, Eukarya and gradually specialized, turn to fist variant of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance. If did not develop the branched hydrocarbon chains attached to glycerol by ether linkages in the membrane lipids of Archaea prokaryotic cells in early phases of evolution it would be impossible the formation of modern variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance inside human body. During clarifying the evolution significance of the membrane three state dependent regulations and the full 9 stepped cycle of proton conductance by us established that:

1. One is variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance was the fluid alpha state of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body consisting of unsaturated fatty acids with high levels of oxy potentials conducting the flow of protons and electrons.
2. Also, second variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance was the solid betta state of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body consisting of mainly saturated fatty acids conditioning a high levels of red potentials conducting the flow of protons and electrons.
3. Third variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance was the gamma state of of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body consisting of decreased contents of saturated - unsaturated fatty acids, conditioning a decreased levels of redoxy potentials conducting the flow of protons and electrons.

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INTRODUCTION

The life was became strongly dependent from the presence of protons and electrons, which were formed during a events called as Big Bang, 15 billion years ago which were conducted in the level of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton, electron conductance.i.e.the protons and electrons, which were formed during a events called as Big Bang through the process termed as singularity 15 billion years ago sets the stage for the formation of life in the universe. The evolution significance of the membrane three state dependent regulations appeared in the three domain of life as Archaea, Bacteria, Eukarya and gradually specialized, turn to fist variant of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance. Archaea are prokaryotic cells which are typically characterized by membrane lipids that are branched hydrocarbon chains attached to glycerol by ether linkages. The presence of these ether linkages in Archaea adds to their ability to withstand extreme temperatures and highly acidic conditions. Halophiles, organisms which thrive in highly salty environments, and hyperthermophiles, organisms which thrive in extremely hot environments, are examples of Archaea (Victor Sojo *et al.,* 2014). Bacteria are prokaryotic cells just like Archaea, their membranes are made of unbranched fatty acid chains attached to glycerol by ester linkages (Victor Sojo *et al.,* 2014). Organisms in the domain Eukarya are eukaryotic cells, or consist of them, which have membranes that are similar to those of bacteria (Victor Sojo *et al.,* 2014). This study shows that the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance formed by chronological order as

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Archaea - Bacteria - Eukarya during last 4,4 billion years as result of evolution processes. In this evolution processes if did not develop the branched hydrocarbon chains attached to glycerol by ether linkages in the membrane lipids of Archaea prokaryotic cells in early stage of evolution it was impossible the formation of modern forms of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance inside human body.

RESULT AND CONCLUSION

During clarifying the evolution significance of the membrane three state dependent regulations and the full 9 stepped cycle of proton conductance by us established that:

- One is variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance was the fluid alpha state of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body consisting of unsaturated fatty acids with high levels of oxy potentials conducting the flow of protons and electrons as evolution process results.
- Also, second variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance was the solid betta state of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body consisting of mainly saturated fatty acids conditioning a high levels of red potentials conducting the flow of protons and electrons as evolution process results.
- Third variants of the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance was the gamma state of the membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance inside human body consisting of decreased contents of saturated - unsaturated fatty acids, conditioning a decreased levels of redoxy potentials conducting the flow of protons and electrons as evolution process results.

When newly discovered by us "3 state line system of membrane - redoxy potential" named system is positioned in the middle of two members, called "carbohydrate, aminoacids,

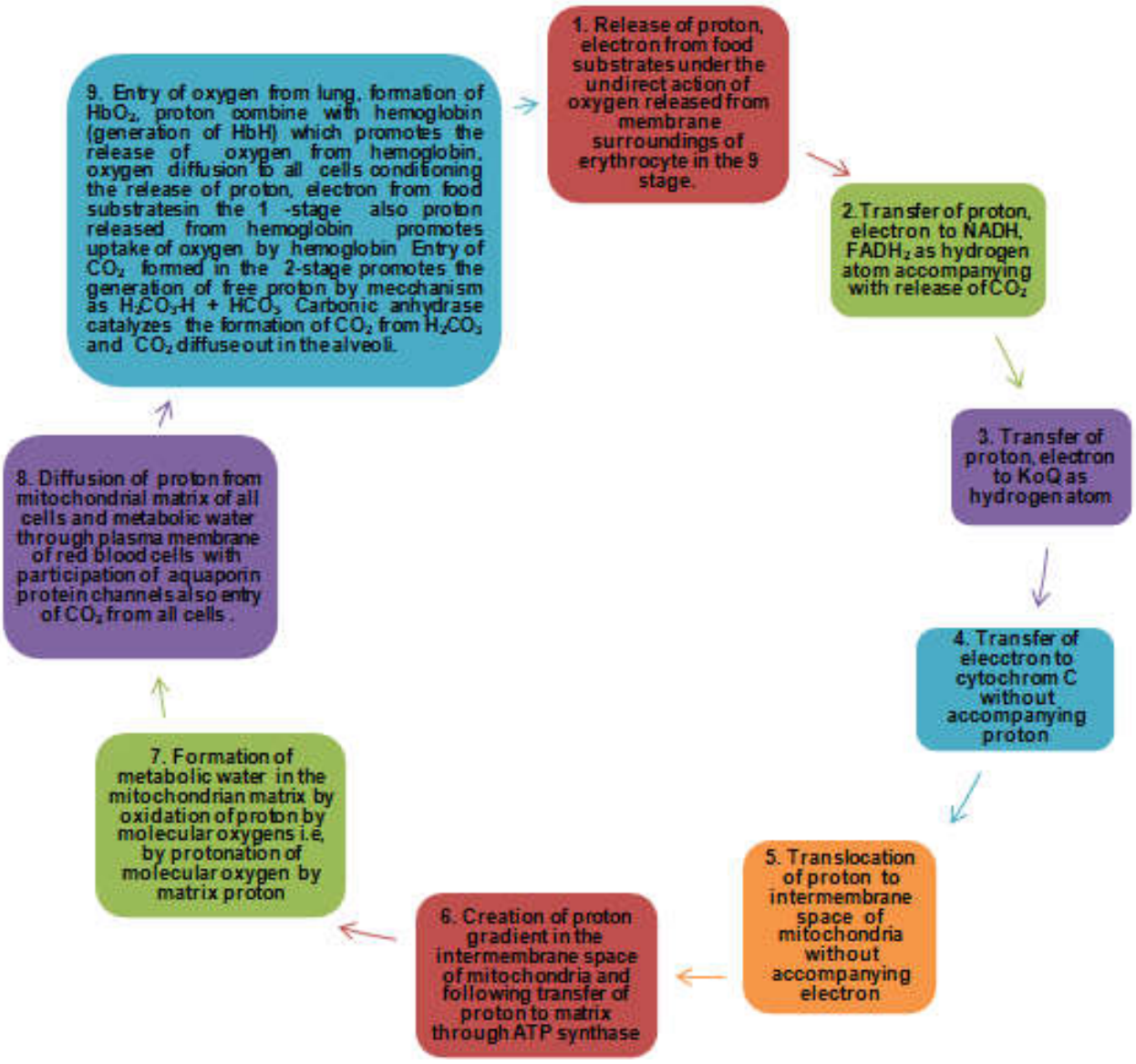

Figure 1. Full 9 stepped cycle of proton conductance inside human body

fatty acids + O_2", on the left hand side of the equation, it is making full -three membered. In this case, this equation becomes into the previously non - existent form of "carbohydrate, aminoacids, fatty acids + 3 state line of membrane - redoxy potential as very important place of conducting of protons, electrons, starting from cyanobacteria formed during last 3,8 billion years + O_2 = energy (ATP + heat) + H_2O + CO_2". What is the specificity of membrane - redoxy potential three state line systems of donators and acceptors, which at first described by us:

- Consisted of H^+, e^- donators as food substrates and H^+, e^- acceptors as oxygens with direct participation of a donators of electrons, protons.
- Ensured normal flow of protons and electrons from donators to acceptors with generation of high energy phosphate - ATP (Alberts *et al.,* 2009), high energy electrons NADPH and heat energy
- Functioned with using a glycolysis reaction, Krebs cycle, oxidative deamination of aminoacids and betta oxidation of fatty acids, oxidation - phosphorylation process to ensure the energetic demand of organism with direct participation of a donators of electrons, protons.
- Provided the normal maintainance of living processes.
- Existed in three interconvertible states following as:

Liquid alpha state having a high value of oxy potential and consisting mainly of unsaturated fatty acids, that creates medium level of ATP and high level of heat energy with direct participation of a donators of electrons, protons. Solid, beta state having a high value of red potential, consisting mainly of saturated fatty acids, that creates high level of ATP and medium level of heat energy with direct participation of a donators of electrons, protons. Gamma state having a low value of redoxy potential, consisting of low content of saturated and unsaturated fatty acids, that creates low level of ATP and low level of heat energy with direct participation of a donators of electrons, protons.

New postulate, appeared in connection with three state line of membrane redoxy potential existed between donators and acceptors inside of living cells has been giving a possibility to radically change following basic aspects as:

- Organ formation evolution of morphogenesis with direct participation of a donators of electrons, protons
- Refined definition of living processes with direct participation of a donators of electrons, protons
- Refined definition of diabetes and obesity with direct participation of a donators of electrons, protons
- Refined definition of security of living body system with direct participation of a donators of electrons, protons.

This above mentioned new theory of existence of three state line of membrane redoxy potential between donators and acceptors inside of living cells will open up a broad avenue in modern medical and biological science both in terms of theoretical innovation as well as applying it in teaching and education practices. In such way if in the membrane - redoxy potential three state line systems enzyme substrate positioned between donators and acceptors in the left side of the full three membered equation of metabolic reaction as "Carbohydrate, aminoacids, fatty acids + the membrane - redoxy potentials 3 state line systems + $6O_2$ = energy (ATΦ, heat energy) + $6H_2O$ + $6CO_2$" has been prevailed alpha state with high oxygen potentials and created a preconditions to generate the oxidized form of metabolites and drugs. In the case of reaction, expressed as $C_6H_{12}O_6$ + $6O_2$ with two member, the formation of such energy as ATP, heat energy, also end products as H_2O, CO_2 in the right side of reaction would not be happened, instead of them glucuronic acid and other products would be formed as a result of oxidation of glucose molecule, paralleled with three variants of intensity of protons and electrons.It should be say that the right variant of three membered chemical balance equation formula for the metabolism is created by putting the membrane - redoxy potentials 3 state line systems of donators and acceptors between $C_6H_{12}O_6$ molecule and $6O_2$ molecule in the left side of reaction.

What is specificity of membrane - redoxy potentials three state line systems of donators and acceptors, which at first described by us and appeared as evolution 4 billion years development results:

1. Consisted of H, e donators as foods and H, e acceptors as oxygens, paralleled with three variants of intensity of flow of protons and electrons.
2. Ensured normal flow of protons and electrons from donators to acceptors with generation of high energy phosphate - ATP and heat energy paralleled with flow of protons and electrons.
3. Functioned with using a glycolysis reaction, Krebs cycle, oxidative deamination of aminoacids and betta oxidation of fatty acids, oxidation - phosphorylation process to ensure the energetic demand of organism, paralleled with three variants of intensity of flow of protons and electrons.
4. Provided the normal maintainance of living processes, paralleled with three variants of intensity of flow of protons and electrons.
5. Existed in three interconvertible states as follows:

    - Fluid alpha state of membrane structures (MS), consisting of mainly unsaturated fatty acids, conditioning a high levels of oxy potentials and with high intensity of proton, electrons conductance and high levels of heat energy release, middle degree of high energy phosphate - ATP with increased ratio of accceptors to donators, paralleled with three variants of intensity of flow of protons and electrons, this state of MS was results of the evolution 4 billion years gradually development.
    - Solid betta state of MS, consisting of mainly saturated fatty acids, conditioning a high levels of red potentials and with slow intensity of proton, electrons conductance and low levels of heat energy release, high degree of high energy phosphate - ATP with increased ratio of donators to acceptors, paralleled with three variants of intensity of flow of protons and electrons, this state of MS was results of the evolution 4 billion years gradually development.
    - Gamma state of MS, consisting of decreased contents of saturated and unsaturated fatty acids, conditioning a decreased levels of redoxy potentials with slow intensity of proton, electrons conductance, also with low levels of heat energy

release and energy accumulation and low degree of high energy phosphate - ATP with decreased contents of donators and accceptors, increased loss-leakage of proton, electrons prior to generation of proton gradients, paralleled with three variants of intensity of flow of protons and electrons, this state of MS was results of the evolution 4 billion years gradually development.

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