



RESEARCH ARTICLE

THE MEMBRANE - REDOX POTENTIALS THREE - STATE LINE SYSTEM DEPENDENT - FULL 9 STEPPED CYCLE OF PROTON CONDUCTANCE AND THE BIOCHEMICAL UNITY OF LIFE

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ABSTRACT

Many studies have demonstrated that such widely divergent organisms as E.coli, yeast, pigeons, and humans have virtually identical pathways for the biosynthesis of purinenucleotides thereby further demonstrating the biological unity of life. We are proposing the new suggestion about existing of close interrelationship, formed during evolution development of life, demonstrating the biological unity of life and also all organisms on earth are descended from a single common ancestor by following lawfull processess, as at first: ATP/ADP cycle functioned as one of parts of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance, at second: synthesize ATP from ADP and a phosphate group with participation of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance, at third: Identical pathways for the biosynthesis of purinenucleotides with participation of ATP generated within membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance of widely divergent organisms as E.coli, yeast, pigeons, and humans, demonstrating the biological unity of life, at fourth: formation of the biological unity of life in the level of ATP/ADP cycle and also in the level of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance. The ATP/ADP cycle is very important factors of the biological unity of life and also is main part of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance. All living organisms have the same kinds of monomeric subunits and the identity of each organism is preserved by its possession of many sets of nucleic acids and of proteins, which formed with participation of ATP/ADP cycle functioned as one of members of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductane. The ATP/ADP cycle is oxidative phosphorylation, which occurs in the inner mitochondrial membrane, which are functioned with participation of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductane.

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INTRODUCTION

Before formation of the evolutionary late electron, proton transporting systems as "Donators + membrane - redox potentials three - state line system + O<sub>2</sub> + ADP + Pi + H<sup>+</sup> + nH<sup>+</sup><sub>membrane space</sub> = (ATP + heat energy) + H<sub>2</sub>O + nH<sup>+</sup><sub>matrix</sub> + CO<sub>2</sub> ensuring "ADP - ATP cycle for chemical energy", some organisms, mostly micro - organisms had been developed the systems to live as acidophile: optimal growth at pH values less than 3, alkaliphile: optimal growth at pH values above10, endolith: live within rocks, or deep (a mile or more) underground; antarctic lichens, halophile: require high salt content, hyperthermophile: requires T>80°C, up to 121°C; hydrothermal vents, hot springs, volcanos, lithoautotrophes:

live inigneous rocks and utilize no organic products of photosynthes is or sunlight, need only CO<sub>2</sub>, H<sub>2</sub>O and H<sub>2</sub> to sustain themselves. Protons diffuse back into the membrane through ATP synthase, which is a protein that uses the energy from these protons to synthesize ATP from ADP and a phosphate group, since mitochondria exist in pretty much every cell, this ATP/ADP cycle occurs throughout whole body by using of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance. Every cell needs a high ATP/ADP ratio to survive. Aerobic metabolism in the mitochondria is the main source of energy to power the ATP/ADP cycle in most cells. All organisms on earth are descended from a single common ancestor, which have been confirmed by these facts as all life forms on earth have a common system as universal use of DNA to store genetic informations, a universal genetic code ribosome technique of protein synthesis, DNA triplets coding for same aminoacid, the use of proteins and lipids to make membranes,

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the use of the ADP - ATP cycle for chemical energy, nucleic acids are needed to make proteins, yet proteins are needed to make nucleic acids and the interrelationship between the processes of photosynthesis and cellular respiration (e.g. recycling of oxygen and carbon dioxide) by using of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance.

## RESULTS AND DISCUSSION

We are proposing the new suggestion about existing of close interrelationship, formed during evolution development of life, demonstrating the biological unity of life and also all organisms on earth are descended from a single common ancestor by following law full processess as at first: ATP/ADP cycle functioned as one of parts of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance, at second: synthesize ATP from ADP and a phosphate group with participation of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance, at third: Identical pathways for the biosynthesis of purinenucleotides with participation of ATP generated within membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance of widely divergent organisms as E.coli, yeast, pigeons, and humans, demonstrating the biological unity of life, at fourth: formation of the biological

unity of life in the level of ATP/ADP cycle and also in the level of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance. Many studies have demonstrated that such widely divergent organisms as E.coli, yeast, pigeons, and humans have virtually identical pathways for the biosynthesis of purinenucleotides thereby further demonstrating the biological unity of life. All living organisms have the same kinds of monomeric subunits, the identity of each organism is preserved by its possession of many sets of nucleic acids and of proteins, which formed with participation of "ATP/ADP cycle" functioned as one of members of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance. All organisms on earth are descended from a single common ancestor, which have been confirmed by these facts that all life forms on earth have a common system as universal use of DNA to store genetic informations, a universal genetic code, ribosome technique of protein synthesis, DNA triplets coding for same aminoacid, the use of proteins and lipids to make membranes, the use of the ADP-ATP cycle for chemical energy, nucleic acids are needed to make proteins, yet proteins are needed to make nucleic acids and also the interrelationship between the processes of photosynthesis and cellular respiration (recycling of oxygen and carbon dioxide) by using of membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance.

Identical pathways for the biosynthesis of purinenucleotides with participation of ATP, formed within membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance of widely divergent organisms, formation of the biological unity of life in the level of proton, electron flows within membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance" have been appeared as follows:

1. The participation of evolutionary late electron, proton transporting systems as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$  in the biosynthesis of purine base molecules have been appeared as the first stage: ribose - 5 phosphate + ATP = 5-phosphoribosyl - alpha - pyrophosphate (PRPP), the second stage: PRPP + glutamine +  $H_2O = \text{beta} - 5\text{-phosphoribosylamine}$ , the third stage: beta - 5-phosphoribosylamine + ATP + glycine = glycinamid ribotide (GAR), the fourth stage: GAR + N10-formyl - TNF = formyl glycinamid ribotide (FGAR), the fifth stage: ATP + glutamine + FGAR = Formyl glycinamid ribotide (FGAM), at the sixth stage: FGAM + ATP = 5-aminoimidazole ribotide (AIR), the seventh stage:  $CO_2 + AIR = \text{carboxyaminoimidazole ribotide (CAIR)}$ , the eighth stage: CAIR + aspartate + ATP = 5 - aminoimidazole - 4 - (succinylcarboxamide) ribotide (SACAIR), the ninth stage: SACAIR = fumarate + 5 - aminoimidazole - 4 - carboxamide ribotide (AICAR), the tenth stage: AICAR + N10 - formyl - TNF = 5 - formaminoimidazole - 4 - carboxamide ribotide (FAICAR), the eleventh stage: FAICAR =  $H_2O + \text{inosine monophosphate (IMP)}$  by principle as "nucleic acids are needed to make proteins, yet proteins are needed to make nucleic acids" in the all widely divergent organisms as E.coli, yeast, pigeons, and humans.
2. Without ATP making bioenergetic reaction medium as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$ , where formed such very important macroergic compounds as ATP, powerful reducing agent NADPH it is absolutely impossible the biosynthesis of purine base, therefore the biosynthesis DNA and RNA molecules in the all widely divergent organisms as E.coli, yeast, pigeons, and humans.
3. The biosynthesis of purine base molecules have been strongly needed the participation of evolutionary late electron, proton transporting systems as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$ " and also the participation of membrane - redox potentials three - state line system, where formed such very important macroerg compounds as ATP, ADP in the all widely divergent organisms as E.coli, yeast, pigeons, and humans.
4. The participation of evolutionary late electron, proton transporting systems as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$ " in the ATP dependent biosynthetic pathway of purine base molecules have been appeared

as the first stage: ribose-5 phosphate + ATP = 5-phosphoribosyl-alpha-pyrophosphate (PRPP), the second stage: PRPP + glutamine +  $H_2O = \text{beta} - 5\text{-phosphoribosylamine}$ , the third stage: beta-5-phosphoribosylamine + ATP + glycine = glycinamid ribotide (GAR), the fourth stage: GAR + N10-formyl-TNF = formyl glycinamid ribotide (FGAR), the fifth stage: ATP + glutamine + FGAR = Formyl glycinamid ribotide (FGAM), at the sixth stage: FGAM + ATP = 5-aminoimidazole ribotide (AIR), the seventh stage:  $CO_2 + AIR = \text{carboxyaminoimidazole ribotide(CAIR)}$ , the eighth stage: CAIR + aspartate + ATP = 5 - aminoimidazole - 4 - (succinylcarboxamide) ribotide (SACAIR), the ninth stage: SACAIR = fumarate + 5 - aminoimidazole - 4 -carboxamide ribotide (AICAR), the tenth stage: AICAR + N10 - formyl - TNF = 5-formaminoimidazole - 4 - carboxamide ribotide (FAICAR), the eleventh stage: FAICAR =  $H_2O + \text{inosine monophosphate (IMP)}$ . In such way 5-phosphoribosyl - alpha-pyrophosphate (PRPP) molecules, which have been synthesized with participation of ATP - ADP cycle and also  $CO_2$ , ATP molecules formed within reaction mediums as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$ " owing to the clockwise normal flow of electrons and protons by including in the structure of inosine monophosphate (IMP) after conducting the abovementioned corresponding reactions became the unseparable structural parts of purine base molecules, also DNA, RNA molecules in the all widely divergent organisms as E.coli, yeast, pigeons, and humans.

5. The middle degree of decrease of ATP biosynthesis intensity within "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$ " have been connected with the decrease of biosynthesis of purinenucleotides with participation of ATP generated within full 9 stepped cycle of proton conductance of widely divergent organisms as E.coli, yeast, pigeons, and humans, demonstrating the biological unity of life.
6. If happens pathological change in the biosynthesis of ATP and formation of heat energy,  $H_2O$ ,  $nH^+_{\text{matrix}}$ ,  $CO_2$  within reaction mediums as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$ " also would cause the partial and complete stopping of synthesis of Adenosine monophosphate molecules from IMP because the biosynthesis of AMP have been needed the participation of GTP in some stage of biosynthesis as at first stage: IMP + aspartate + GTP = adenylosuccinate in all cells of all widely divergent organisms as E.coli, yeast, pigeons, and humans.

Also the pathological changes in the ATP biosynthesis and formation of heat energy,  $H_2O$ ,  $nH^+_{\text{matrix}}$ ,  $CO_2$  within reaction mediums as "Donators + membrane - redox potentials three - state line system +  $O_2 + ADP + Pi + H^+ + nH^+_{\text{membrane space}} = (ATP + \text{heat energy}) + H_2O + nH^+_{\text{matrix}} + CO_2$  would lead to disturbing the biosynthesis of Guanosine monophosphate (GMP) from IMP because the biosynthesis of GMP have been needed the participation of ATP/ADP cycle in some stage as at

the second stage: XMP + glutamine + ATP = GMP in all cells of all widely divergent organisms as E.coli, yeast, pigeons, and humans.

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