

THE FULL 9 STEPPED CYCLE OF PROTON CONDUCTANCE AND THE BIOSYNTHESIS OF PYRIMIDINE RIBONUCLEOTIDES AFTER PARTIAL, COMPLETE STOP OF PROTON, ELECTRON FLOWS

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ABSTRACT

The 5-phosphoribosyl - alpha - pyrophosphate (PRPP) molecules, which have been synthesized with participation of ribose-5 phosphate formed in the pentose phosphate pathway and CO₂, ATP molecules formed within reaction mediums as "Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂" owing to the clockwise normal flow of electrons and protons by including in the structure of orotidine monophosphate after conducting the corresponding reactions became the unseparable structural parts of pyrimidine ribonucleotides, also DNA, RNA molecules. If happens any disturbance in the system of delivery of Donators and acceptors as O₂ to equation reaction mediums as "Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂" it would lead to partial, complete stopping the clockwise normal flow of electrons, protons with disturbance of formation of ATP and with disturbance of biosynthesis of orotidine monophosphate and pyrimidine ribonucleotides.

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INTRODUCTION

It would be interesting to establish that difference of change of biosynthesis of pyrimidine ribonucleotides depending of partial and complete stop of donator and acceptor delivery Complete stop of donator and acceptor delivery have been associated with formation of the full necrosis of cells, where happened the complete stop of clockwise normal flow of electrons and protons leading to decrease of ATP dependent biosynthesis of orotidine monophosphate and pyrimidine ribonucleotides, also DNA, RNA molecules. The participation of evolutionary late electron, proton transporting systems as "Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂" in the biosynthesis of pyrimidine ribonucleotides have been appeared

as ATP + HCO₃ + glutamine + H₂O = carbamoyl phosphate, carbomoyl phosphate + aspartate = carbamoyl aspartate, carbamoyl aspartate = H₂O + dihydroorotate, dihydroorotate + quinone = orotate, orotate + PRPP = orotidine monophosphate (OMP), OMP = CO₂ + uridine monophosphate (UMP). But untill now the recent findings of literature could not give the appropriate answer to above mentioned principally important questions.

RESULTS AND DISCUSSION

The 5-phosphoribosyl-alpha-pyrophosphate (PRPP) molecules, which have been synthesized with participation of ribose-5 phosphate formed in the pentose phosphate pathway and CO₂, ATP molecules formed within reaction mediums as "Donators + membrane - redox potentials three - state line

system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂” owing to the clockwise normal flow of electrons and protons by including in the structure of orotidine monophosphate after conducting the corresponding reactions became the unseparable structural parts of pyrimidine ribonucleotides, also DNA, RNA molecules. Within frame of recent scientific work we are aiming to discuss the following interconnected biological events as at first :normal and disturbed forms of basic parameters of bioenergetic systems as “Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂”, at second : the ATP dependent biosynthetic pathway of orotidine monophosphate and pyrimidine ribonucleotides, at third:partial and complete stopping of normal clockwise flow of electrons, protons, at fourth :in which stages of the full 9 stepped cycle of proton conductance have been happened the partial and complete stopping of normal clockwise flow of electrons,protons, at fifth: how to prevent the partial and complete stopping of normal clockwise flow of electrons, protons by normalizing the disturbed forms of basic parameters of above mentioned bioenergetic systems. It may be say that complete stop of ATP dependent biosynthesis of orotidine monophosphate and pyrimidine ribonucleotides due to complete stop of proton, electron conductance would lead to death, irreversible damage of cells. Partial stop of proton, electron conductance have been associated with provocation of partial damage of cells, which are easily subjected to protection procedure of prevention and pharmacotherapy.

In case of conducting of the appropriate prevention procedure and pharmacotherapy the parts of damaged cells with partial stop of proton, electron conductance would be turn to normal cells where are preserved clockwise normal flow of electrons, protons and would remain normally. It can be say that by using the reaction medium of “Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂” have been occurred the process of biosynthesis of orotidine monophosphate and pyrimidine ribonucleotides depending of proton,electron flows.

At first, the middle degree of decrease of ATP biosynthesis level within “Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂” have been connected with the partial stop of donator and acceptor delivery.

At second, the partial stop of donator and acceptor delivery have been associated with the middle level of biosynthesis of orotidine monophosphate and pyrimidine ribonucleotides.

At third, the complete stop of ATP biosynthesis within “Donators + membrane - redox potentials three - state line system + O₂ + ADP + Pi + H⁺ + nH + membrane space = (ATP + heat energy) + H₂O + nH + matrix + CO₂” have been connected with the complete stop of donator and acceptor delivery.

At fourth, the complete stop of donator and acceptor delivery have been associated with the complete stop of biosynthesis of orotidine monophosphate and pyrimidine ribonucleotides.

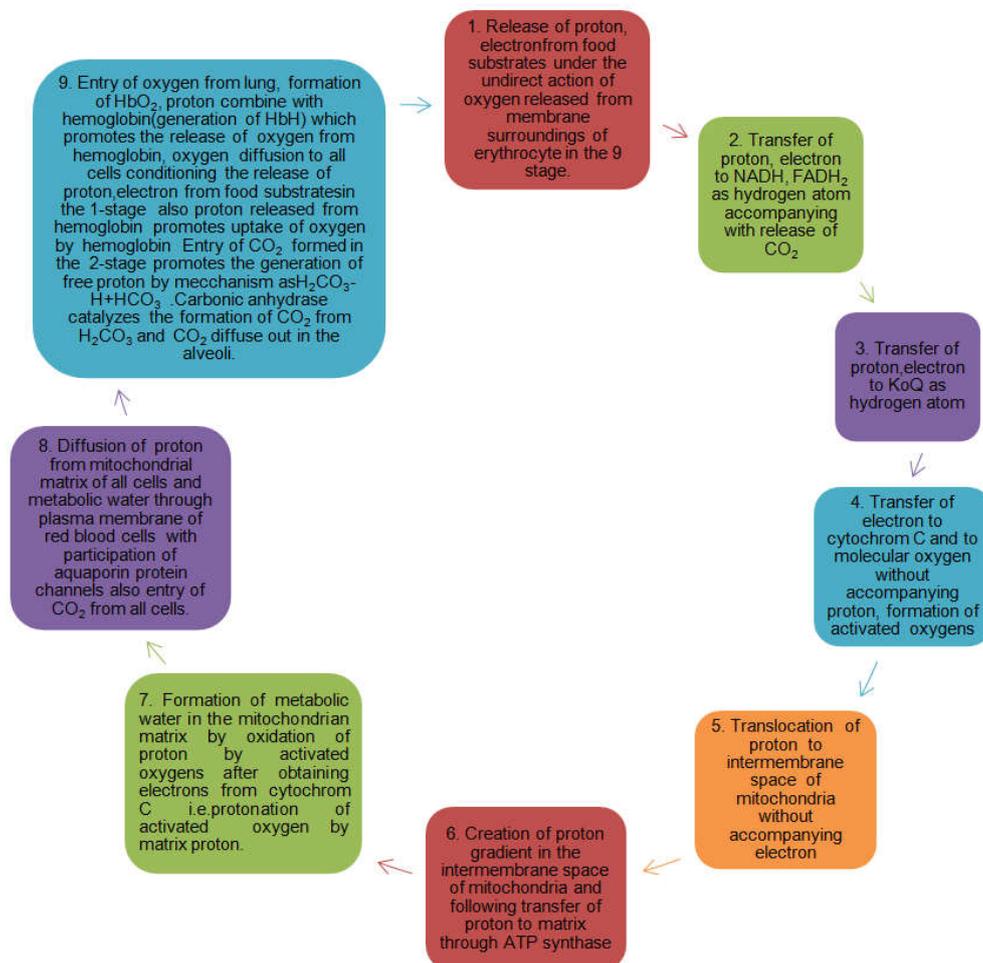


Figure 1. Second late evolution time equation of flow of electrons and protons

In such way the decrease of proton gradient depending generation of ATP molecules and formation of heat energy, H_2O , nH + matrix, CO_2 within reaction mediums as “Donators + membrane - redox potentials three - state line system + O_2 + ADP + Pi + H^+ + nH + membrane space = (ATP + heat energy) + H_2O + nH + matrix + CO_2 ” would lead to partial and complete stop of synthesis of pyrimidine ribonucleotides as Uridine monophosphate (UMP) because the biosynthesis of pyrimidine ribonucleotides have been conducted with the participation of ATP in all stages :as at first stage: $ATP + HCO_3 + glutamine + H_2O = carbamoyl\ phosphate$, at second stage: $carbamoyl\ phosphate + aspartate = carbamoyl\ aspartate$, at third stage : $carbamoyl\ aspartate = H_2O + dihydroorotate$, at fourth stage : $dihydroorotate + quinone = orotate$, at fifth stage : $orotate + PRPP = orotidine\ monophosphate\ (OMP)$, at sixth stage: at seventh stage: $OMP = CO_2 + uridine\ monophosphate\ (UMP)$. If by any reason it have been occurred the limitation of biosynthesis of ATP and formation of heat energy, H_2O , nH + matrix , CO_2 in framework of reaction mediums as “Donators + membrane - redox potentials three - state line system + O_2 + ADP + Pi + H^+ + nH + membrane space = (ATP + heat energy) + H_2O + nH + matrix + CO_2 ” it would be lead to the partial and complete stopping of synthesis of Cytidine monophosphate (CTP) because the biosynthesis of CTP have been occurred with the participation of ATP, this reaction appeared as $UTP + glutamine + H_2O = CTP$. The limitation of biosynthesis of ATP, NADPH and formation of heat energy, H_2O , nH + matrix , CO_2 within reaction mediums as “Donators + membrane - redox potentials three - state line system + O_2 + ADP + Pi + H^+ + nH + membrane space = (ATP + heat energy) + H_2O + nH + matrix + CO_2 ” also would cause the partial and complete stopping of biosynthesis of Thymidine monophosphate (dTMP), because the biosynthesis of dTMP have been needed the participation of ATP as $dUMP + N_5, N_{10} - Methylene - THF = dTMP$.

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