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RESEARCH ARTICLE

THE FULL 9 STEPPED CYCLE OF PROTON CONDUCTANCE AND THE TIME DEPENDENT DISTURBANCE OF CLOCKWISE NORMAL FLOW OF ELECTRONS, PROTONS DURING SHORTAGE OF DONATORS AND ACCEPTORS

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ABSTRACT

By us revealed that after shortage of donators and acceptors have been formed the acute necrosis zone owing to disturbance of reaction mediums of "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" depending on the time of shortage of donators and acceptors in following forms:

1. During 0 - 20 minutes after shortage of donators and acceptors, all cells have not been subjected to damage where the clockwise normal flow of electrons and protons with duration of 4-5 second of every cycle are remained normaly, forming so named normal zone.
2. During 20-30 minutes after shortage of donators and acceptors, some part of cells have been subjected to damage resulting to form of border zone where happened the temporarily stop of clockwise normal flow of electrons and protons with anti – clockwise, antispiral-like evolutionary back steps from second evolution late time equation of flow of electrons and protons to early evolution first time equation with provocation of release of proton, electron from glucose by glycolysis, which followed by transfer of proton, electron to NAD, formation of NADH and substrate phosphorylation accompanied by biosynthesis of ATP without participation of membrane redoxy potential 3 state system, oxygens, ATP synthase with formation of end product as pyruvate .
3. During 30 minutes after shortage of donators and acceptors formed the full necrosis zone where have been observed the complete stop of clockwise normal flow of electrons and protons.

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INTRODUCTION

Untill now the recent findings of literature could not give the appropriate answer to such principally important questions as in which time interval after shortage of donators and acceptors all cells have not been subjected to death by preserving and maintaining of clockwise normal flow of electrons and protons with duration of 4-5 second of every cycle, also by normally releasing of proton, electron from food substrates (carbohydrate, aminoacids, fatty acids) and by normally transferring of proton, electron to NADH as hydrogen atom and formation of CO_2 in Krebs cycle, by normally transferring of electron to cytochrom C without accompanying proton, by normally translocating of proton to intermembrane space of mitochondria without accompanying electron, by normally creating of proton gradient in the intermembrane space of mitochondria and by normally transferring of proton to matrix through ATP synthase with normal tendency of forming of metabolic water in the mitochondria matrix by oxidation of proton by molecular oxygens i.e, by normally protonation of molecular oxygen by matrix proton, by existing of normal precondition of diffusing of proton, diffusion of metabolic water through plasma membrane of red blood cells with participation of aquaporin protein channels and normally releasing of oxygen from hemoglobin, oxygen diffusion to cells. It would be interesting if can establish the corresponding time, during which have been formed the normal zone, where normally existed the clockwise normal flow of electrons and protons with duration of 4-5 second of every cycle and corresponding time during which have been formed border zone where happened the temporarily stop of clockwise normal flow of electrons and protons with decreased level of dehydrogenase activity and where also have been provocated the anti – clockwise, antispiral - like evolutionary back steps from second evolution late time equation of flow of electrons and protons to early evolution first time equation with provocation of release of proton, electron from glucose by glycolysis, followed by transfer of proton, electron to NAD, formation of NADH and substrate phosphorylation dependent synthesis of ATP without participation of membrane redoxy potential 3 state system, oxygens, ATP synthase with

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formation of end product as pyruvate, leading to forming of full necrosis zone where happened the complete stop of clockwise normal flow of electrons and protons.

We are proposing that the reaction medium of "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" is conditioned the appearance of various time dependent damage of cells after **shortage of** donators and acceptors.

RESULTS AND DISCUSSION

By us revealed that after shortage of donators and acceptors have been formed the acute necrosis zone owing to disturbance of reaction mediums of "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" depending on the time of shortage of donators and acceptors in following forms:

1. During 0 - 20 minutes after shortage of donators and acceptors, all cells have not been subjected to damage where the clockwise normal flow of electrons and protons with duration of 4-5 second of every cycle are remained normaly, forming so named normal zone.
2. During 20-30 minutes after shortage of donators and acceptors, some part of cells have been subjected to damage resulting to form of border zone where happened the temporarily stop of clockwise normal flow of electrons and protons with anti – clockwise, antispiral - like evolutionary back steps from second evolution late time equation of flow of electrons and protons to early evolution first time equation with provocation of release of proton, electron from glucose by glycolysis, which followed by transfer of proton, electron to NAD, formation of NADH and substrate phosphorylation accompanied by biosynthesis of ATP without participation of membrane redoxy potential 3 state system, oxygens, ATP synthase with formation of end product as pyruvate.
3. During 30 minutes after shortage of donators and acceptors formed the full necrosis zone where have been observed the complete stop of clockwise normal flow of electrons and protons

The feature of normal zone, which remained normally during 0 - 20 minutes after **shortage of** donators and acceptors, where the clockwise normal flow of electrons and protons are preserved normally are distinguished by peripheral location and normal level of dehydrogenase activity and normal level of vascularization (Ambaga M, Kogan A.K.Kudrin A.N. 1984).
The feature of Border zone, which formed during 20 minutes after **shortage of** donators and acceptors, where happened the temporarily stop of clockwise normal flow of electrons and protons are distinguished by middle location and decreased level of dehydrogenase activity and relatively normal level of vascularization, also antispiral-like evolutionary back steps from second evolution late time equation of flow of electrons and protons to early evolution first time equation with provocation of release of proton, electron from glucose by glycolysis, followed by transfer of proton, electron to NAD, formation of NADH and substrate phosphorylation related biosynthesis of ATP without participation of membrane redoxy potential 3 state system, oxygens, ATP synthase, formation of end product as pyruvate. The feature of full necrosis zone, which formed during 30 minutes after **shortage of** donators and acceptors, where happened the complete stop of clockwise normal flow of electrons and protons are distinguished by central location, and complete stop of dehydrogenase activity and lacking of vascularization (Ambaga M, Kogan A.K.Kudrin A.N. 1984).

In such way, zone where the clockwise normal flow of electrons and protons have not been disturbed during 0 - 20 minutes after **shortage of** donators and acceptors, are characterized by maintaining of clockwise normal flow of electrons and protons with duration of 4-5 second of every cycle and by creating of the normal level of releasing of proton, electron from food substrates (carbohydrate, aminoacids, fatty acids), also by maintaining of the normal precondition of transferring of proton, electron to NADH as hydrogen atom and formation of CO_2 in Krebs cycle, also by normally transferring of proton, electron to KoQ as hydrogen atom, by normally transferring of electron to cytochrom C without accompanying proton, by normally translocating of proton to intermembrane space of mitochondria without accompanying electron and by normally creating of proton gradient in the intermembrane space of mitochondria and following transfer of proton to matrix through ATP synthase and by normally forming of metabolic water in the mitochondria matrix by oxidation of proton by molecular oxygens i.e, by protonation of molecular oxygen by matrix proton.

B. Border zone, which formed during 20 minutes after **shortage of** donators and acceptors is characterized by formation of mixed forms of reaction form 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" and reaction form as "Donators + ADP + Pi + H^+ + nH + membrane space = (ATP + heat energy) + matrix + pyruvate, so named glycolysis.

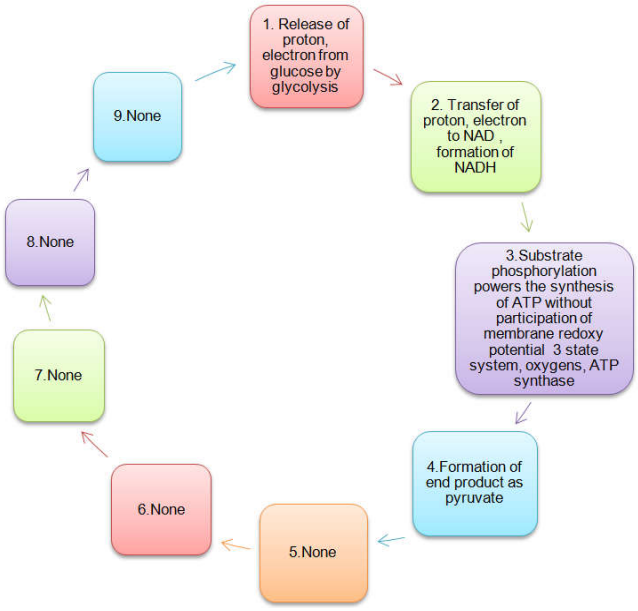

Figure 1. First early evolution time equation of flow of electrons and protons

Full necrosis zone, which formed during 30 minutes after **shortage of** donators and acceptors, where occurred the complete stop of clockwise normal flow of electrons and

Figure 2. Second late evolution time equation of flow of electrons and protons

protons is characterized by irreversible stop of electron and proton conductance at first :in the stage of release of proton, electron from food substrates (carbohydrate, aminoacids, fatty acids), at second :in the stage of transferring of proton, electron to NADH as hydrogen atom and formation of CO_2 in Krebs cycle, at third:in the stage of transferring of proton, electron to KoQ as hydrogen atom, at fourth : in the stage of ransferring of electron to cytochrom C without accompanying proton, at fifth : in the stage translocating of proton to intermembrane space of mitochondria without accompanying electron, at sixth : in the stage of creating of proton gradient in the intermembrane space of mitochondria and following transfer of proton to matrix through ATP synthase, at seventh : in the stage of forming of metabolic water in the mitochondria matrix by oxidation of proton by molecular oxygens i.e, by protonation of molecular oxygen by matrix proton, at eighth : in the stage of diffusing of proton, diffusion of metabolic water through plasma membrane of red blood cells with participation of aquaporin protein channels and entry of oxygen from lung to erythrocyte, entry of carbon dioxide from cells to erythrocyte, also at ninth : in the stage of forming of free protons from metabolic water again by reaction as $H_2CO_3 = H + HCO_3$ (H_2CO_3 formed from metabolic water), proton combine with hemoglobin (generation of HbH) which promotes the release of oxygen from hemoglobin, oxygen diffusion to all cells.

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