Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 10, Issue, 02, pp.65128-65132, February, 2018

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

THE HISTORY OF DISCOVERY OF FULL CLOSED CYCLE OF PROTON CONDUCTANCE INSIDE HUMAN BODY

***Ambaga, M. and Tumen-Ulzii, A.**

New Medicine Medical University, Ulanbator, Mongolia

ARTICLE INFO

Article History:
Received 24th November, 2017
Received in revised form
23rd December, 2017
Accepted 16th January, 2018
Published online 18th February, 2018

Key words:
The full closed
Cycleof protonconductance.

ABSTRACT

Our first imagination was that the evolution history of development of lifeprocesses in our planet during last billion year should build the full closed cycle of protons, with direct participation of this cycle have been formed more than 100 kg ATP during 24 hours and heat energy, enough to warm the human body until 36-37 Celsius degree, where protons have been recirculated, reutilized, making repeated circulation movement within concrete interval time. 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 entry of oxygen from lung, formation of HbO_2, proton combine with hemaglobin (generation of HbH) which promotes the release of oxygen from hemaglobin, oxygen diffusion to all cells conditioning the release of proton, electron from food substrates in the 1-stage, also proton released from hemaglobin promotes uptake of oxygen by hemaglobin, which we named as 9-th stage of the full closed cycle. In this connection it was raised the question as which basic features should be bear the 8-th stage of the full closed cycle. After this, it was became clear that the 8-th stage of the full closed cycle had been distinguished by the diffusion of proton from mitochondrial matrix of all cells in the form of HCO_3 as the protonated carbon dioxide, and metabolic water through plasma membrane of red blood cells with participation of aquaporin protein channels and by Na^+/H^+antiport mechanism, also entry of CO_2 from all cells.

Citation: **Ambaga, M. and Tumen-Ulzii, A. 2018.** "The history of discovery of full closed cycle of proton conductance inside human body", *International Journal of Current Research*, 10, (02), 65128-65132.

INTRODUCTION

It is raised the principally important questions relating toas how protons made closed repeated movement by circulating through closed circle, where is started first point stage of protonconductance, where is ended the terminal stage and how the previous stage of circulation have been conditioned the following stage and in which relationship and interconnection existed both parallel existed stages of proton conductance.

Our first attempts was aimed to findthe full closed cycle for protons, with direct participation of this cycle have been formed ATP and heat energy, as same as the Krebs cycle of electron,proton conductance. In early 1937, Krebs' team discovered that citrate acted as a catalyst, whileresearchers C. Martius and F. Knoop discovered another product of citrate oxidation as ketoglutarate. At Krebs' Sheffield laboratory revealed that another product of cellular respiration– oxaloacetate could combine with pyruvate or other compounds to form citrate, closing the circle. Bohr effect describing as an increase in blood carbon dioxide level or a decrease in pH causes hemoglobin to bind to oxygen with less affinity, a decrease in carbon dioxide or increase in pH will result in hemoglobin picking up more oxygen and a decrease in blood pHor an increase in blood CO_2 concentration will result in hemoglobin proteins releasing their loads of oxygen have been given to us first imagination how to close the circle of proton conductance, proposed by us. Also, literature data, demonstrating that hemaglobins of vertebrate erythrocytes perform two major biological functions transport of O_2 from respiratory organ to peripheral tissues, and transport of CO_2 and protons from peripheral tissues to respiratory organ for subsequent excretion (Murray R.K, et all), respiration requires electron transport – redox reaction, also a membrane, proton pump, and an ATP-synthase, the main problem with respiration evolving early in the history of life is the need for a membrane (Nick Lane)affinity of hemoglobin to O_2 decreases when pH of blood falls-facilitates release of O_2 in tissues-increased CO_2 in blood- increased H^+ production- H^+ binds to deoxyhemoglobin- accesibility of O_2 to hemoglobin decreases - O_2 releasedwas more useful scientific guide to us to find the such lawful processes as how protons made closed movement by circulating through closed circle, where is started first point stage of proton conductance. But, at first it was very difficult for us to describe that how occured the conductance

Corresponding author:* **Ambaga, M.
New Medicine Medical University, Ulanbator, Mongolia

of proton by closed cycle, starting from first stage of conductance and ending by repackaging of protons inside membrane surroundings of erythrocyte. During our investigation we had been succeeded to find first thestage of the full closed cycle of electron, proton conductance, which features may be described as release of proton, electron from food substrates under the undirect action of oxygen released from membrane surroundings of erythrocyte in the 9-th stage, which named by us as the first stage of the full closed cycle

RESULTS AND DISCUSSION

Our first imagination was that the evolution history of development of lifeprocesses in our planet during last billion year should build the full closed cycle of protons, with direct participation of this cycle have been formed more than 100 kg ATP during 24 hours and heat energy, enough to warm the human body until 36-37 Celsius degree where protons have been recirculated, reutilized, making repeated circulation movement within concrete interval time.

would meet protons separated from food substrates with oxygen as electron acceptors, which factors will cause the release of electrons and protons from food substrates, which factors will cause the release of oxygen from the erythrocyte membrane surroundings. Before discovery of the membrane - redox potential, a three state line system dependent - full 9 stepped closed cycle of proton conductance, we did not know which factors will cause the release of carbon dioxidefrom the erythrocyte membrane surroundingsin the direction to respiratory organs, from which stage started the cycle of proton conductance inside human body,and by which stage ended the cycle of electron and proton conductance inside human body and from how many stagesare consistedthe closed cycle. At first time, we revealedthe 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 protonconductance inside human body starts from the release of protons and electrons from food substrates (first stage) and ends by the final accumulation of free protons in the form of HbH inside the erythrocyte

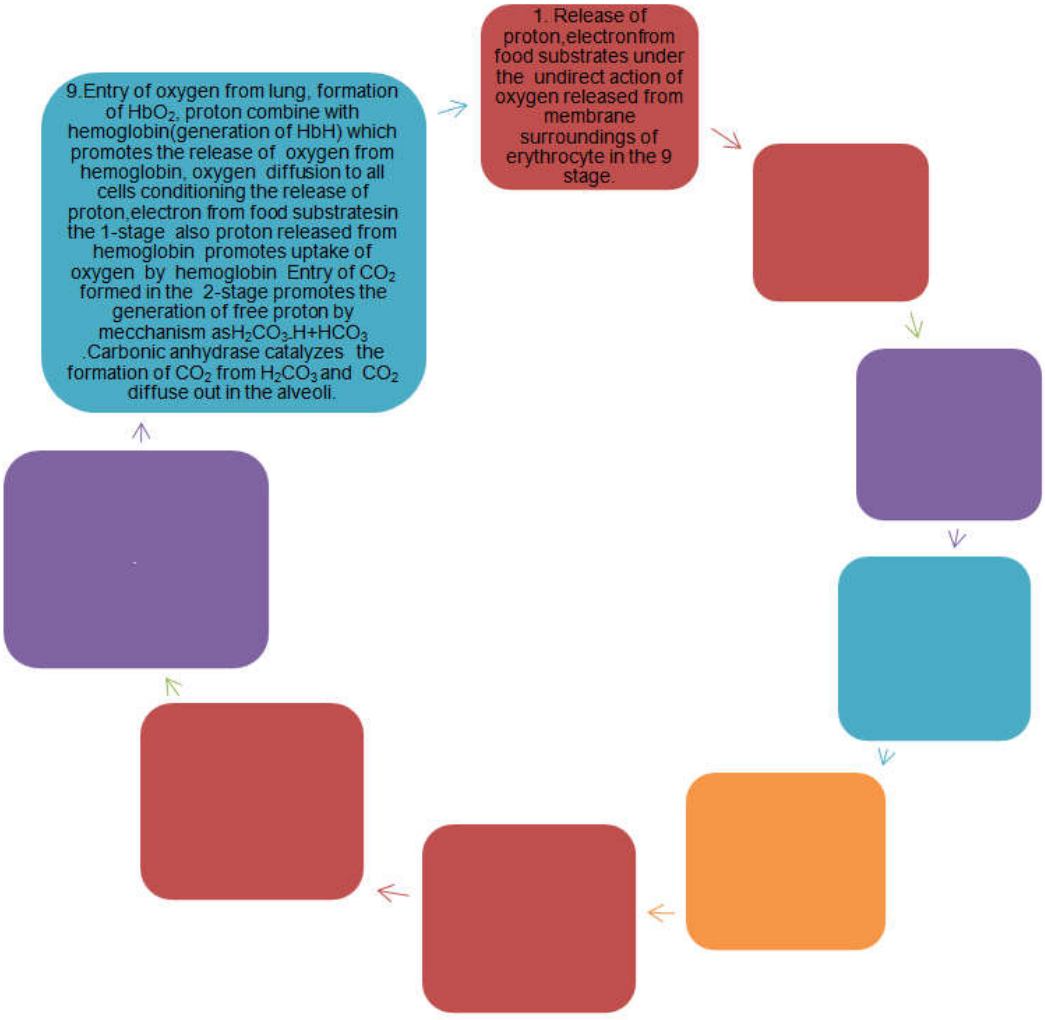

Figure 1. First revealed the basic two stage and parameters of closed cycle of proton conductance inside human body

In such way, at first time we have had the imagination that inside human body should be the closed pathway, by which have been conducted the circulation of protons, but, in this time we did not know several facts about the full closed cycle of proton conductance inside human body. At example, we did not know which stage of the full cycle of proton conductance inside human body followed after Krebs cycle, in which part of full closed cycle of proton conductance inside human body

membrane surroundings, allowing the promotion of oxygen intake by all cells of human body and the removal of carbon dioxide from the human body. 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 entry of oxygen from lung, formation of HbO_2, proton combine with hemaglobin (generation of HbH) which promotes the release of oxygen from hemaglobin, oxygen

diffusion to all cells conditioning the release of proton, electron from food substrates in the 1-stage also proton released from hemaglobin promotes uptake of oxygen by hemaglobin,which named by us as 9-th stage of the full closed cycle.

The fifth stage of the full closed cycle have been connected with Mitchel discovery, relating to translocation of proton to intermembrane space of mitochondria without accompanying electron. After this, we revealed that translocation of proton to intermembrane space of mitochondria without accompanying

Figure 2. The final variant of closed cycle of proton conductance inside human body

In this connection it was raised the question as which features should be bear the 8-th stage of the full closed cycle. After this, it was became clear that the 8-th stage of the full closed cycle have been distinguished by the diffusion of proton from mitochondrial matrix of all cells in the form of HCO_3 as the protonated carbon dioxide, and metabolic water through plasma membrane of red blood cells with participation of aquaporin protein channels and by Na^+/H^+antiport mechanism, also entry of CO_2 from all cells. Also during our study we established that the second stage of the full closed cycle have been characterized by transfer of protons and electrons to NADH as hydrogen atom and formation of CO_2 in Krebs cycle in the result of release of protons and electrons from food substrates (carbohydrate, amino acids, fatty acids). After this, it was clear that third stage of the full closed cycle have been conducted as transfer of protons and electrons to KoQ as hydrogen atom from NADH and FADH2. What about the fourth stage of the full closed cycle, this stage may be described as transfer of electrons to cytochrom C without accompanying proton.

electron should be lead to creation of proton gradient in the intermembrane space of mitochondria and following transfer of proton to matrix through ATP synthase, this stage named by us as the seventh stage of the full closed cycle of electron, proton conductance. The full 9 stepped cycle of proton conductance inside the human body was proposed by M.Ambaga is included the "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" reaction medium.

Basing in the our study, we concluded that the following close relationships existed between stages 1 and 9 of the full 9 stepped cycle of proton conductance inside the human body:

- Release of proton, electron from food substrates in the first stage have been occured under the undirect action of oxygen released from membrane surroundings of erythrocyte in the end 9 stage.

- In the end 9-th stage proton combines with hemaglobin (generation of HbH), which promotes the release of oxygen from hemaglobin and the oxygen diffusion to all cells conditioned the release of proton and electron from food substrates in the 1st stage.
- The entry of CO_2 formed in the second stage of the full 9 stepped cycle of electron and proton conductance promotes the generation of free proton by mechanism as H_2CO_3 -H + HCO_3, in such a way that promotes the release of oxygen from hemaglobin in the 9-th stage and the oxygen diffusion to all cells conditioned the release of proton and electron from food substrates in the 1st stage of the full 9 stepped cycle of electron and proton conductance.

Beside all this, protons released from erythrocyte membrane surroundings in the 9-th stage of closed cycle by incorporating into composition of HCO_3 (bicarbonate ions) and bicarbonate ions have been participated in the biosynthesis of pyrimidine ribonucleotides, which have been conducted as ATP + HCO_3 + glutamine + H_2O = carbamoyl phosphate, carbomoyl phosphate + aspartate = carbamoyl aspartate, carbamoyl aspartate = H_2O + dihydroorotate, dihydroorotate + quinine = orotate, orotate + PRPP = orotidine monophosphate (OMP), OMP = CO_2 + uridine monophosphate (UMP). Protons released from erythrocyte membrane surroundings in the 9-th stage of closed cycle is mostly transported within HCO_3 (bicarbonate ions) and H_2CO_3 (carbonic acid).

A. The cellular mechanism responsible for synthesis of gastric HCL with participation of released protons from erythrocyte membrane surroundings and repackaged in the erythrocyte membrane surroundings in the 9-th stage of closed cycle.

- In the chloride shift as HCO_3 (bicarbonate ions) eventually bearing proton released from food substrates diffuse out erythrocyte membrane surroundings into the plasma
- After this in bloodstreams HCO_3 (bicarbonate ions) reacted with H^+ and formed H_2CO_3 (carbonic acid)
- After this H_2CO_3 (carbonic acid) dissociates to form of H_2O and CO_2
- After this carbon dioxide (CO_2) diffuses into the gastric parietal cells
- After this carbon dioxide (CO_2) combines with water formed H_2CO_3 (carbonic acid)
- After this H_2CO_3 (carbonic acid) dissociates in to a HCO_3 (bicarbonate ions) and hydrogen ion (H^+)
- HCO_3 (bicarbonate ions) are transported back into bloodstream
- H^+K^+ exchange proton pump moves H^+ into duct of gastric gland and K^+ ito the parietal cell
- Chloride ions diffuse into gastric gland duct.

In such way hydrogen ions (proton) are derived from carbon dioxide and water, which enter the parietal cell and participated in the synthesis of HCL.

The cellular mechanism responsible for secretion of HCO_3 (bicarbonate ions) in pancreaswith participation of released protons from erythrocyte membrane surroundings. HCO_3 (bicarbonate ions) in pancreatic juice are neutralized the acidic chyme that enters the small intestine from the stomach. HCO_3 (bicarbonate ions) and hydrogen ions (proton) are derived from carbon dioxide and water enter the pancreatic duct cell. Carbon dioxide and water, which enter the pancreatic duct cell have been beared protons released from food substrates and repackaged in the erythrocyte membrane surroundings in the 9-th stage of closed cycle and released from this.

- Water (H_2O) and carbon dioxide (CO_2) combine to form H_2CO_3 (carbonic acid)
- H_2CO_3 (carbonic acid) dissociates to form HCO_3^- (bicarbonate ions) and hydrogen ion (H^+)
- Hydrogen ion (H^+) are exchanged for Na ions
- HCO_3 (bicarbonate ions) are transported into the intercalated ducts in exchange for CL ion.

The cellular mechanism responsible for proton dependent acid – base balance with participation of released protons from erythrocyte membrane surroundings:

- Water (H_2O) and carbon dioxide (CO_2) combine to form H_2CO_3 (carbonic acid) within lung capillary blood circulation
- H_2CO_3 (carbonic acid) dissociates to form HCO_3 (bicarbonate ions) and hydrogen ion (H^+)
- Carbon dioxide and water, which enter the lung capillary blood circulation have been beared protons released from food substrates in the 1-th stage of closed cycle and repackaged in the erythrocyte membrane surroundings in the 9-th stage of closed cycle and released from this.

D. The cellular mechanism responsible for kidney regulation of proton dependent acid – base balance with participation of released protons from erythrocyte membrane surroundings

- H+ combine to form HCO_3 (bicarbonate ion) to form HCO_3 (bicarbonate ions) within kidney peritubular capillary blood circulation
- H_2CO_3 (carbonic acid) is converted to water (H_2O) and carbon dioxide (CO_2)
- In the tubular cells carbon dioxide (CO_2) combine with water (H_2O) to form H_2CO_3 (carbonic acid)
- H_2CO_3 (carbonic acid) dissociates to form HCO_3 (bicarbonate ions) and hydrogen ion (H^+)
- By antiport mechanism H^+ is secreted into filtrate in exchange for Na from the filtrate

In such way carbon dioxide and water, which enter the kidney peritubular capillary blood circulation have been beared protons released from food substrates in the 1-th stage of closed cycleand repackaged in the erythrocyte membrane surroundings in the 9-th stage of closed cycle and released from this.

REFERENCES

Ambaga, M. 2016. A new suggestion about existing of membrane - redoxy potential three state line system between donators and acceptors inside the living cells, *Asian Journal of Science and Technology*, Vol.07, Issue, 07, pp.3157-3161.

Ambaga, M. 2016. The buffering capacity of erythrocyte membrane surroundings in relation to free protons, formed in the Full Cycle of Proton and Electron Conductance

inside the Human Body. *International Journal of Development Research*, Vol 06, Issue, 07, pp. 8458-8461.

Ambaga, M. 2016. The Full Cycle of Proton and Electron Conductance inside the Human Body, Consisting of 9 Linked Stages. *Acad. J. Sci. Res.* 4(6): 127-131.

Ambaga, M. 2016. The Full Cycle of Proton and Electron Conductance inside the Human Body and triple Rlung, Mkhris, Badgan theory of Tibetian Traditional medicine, *International Journal of Current Research,* Vol 8, Issue 08, p.36391-36393.

Ambaga, M. 2016. The possibility to drive the membrane - redox potential, a three state line system dependent - full 9 stepped cycle of proton conductance inside human body to favorable direction during pathological situations., *International Journal of Current Research,* Vol, Issue,11, pp 42456-42459, November.

Ambaga, M. 2017. The bioevolution link between the two basic electron, proton dependent metabolic reaction systems of obtaining of ATP, *International Journal of Current Research,* vol 9, issue 06, pp.52182-52185.

Ambaga, M. 2017. The full 9 stepped cycle of proton conductance and the two basic electron, proton dependent metabolic reaction system of obtaining of ATP, *Applied Science and innovative Research*, vol.1, No 1, pp 63-68.

Ambaga, M. 2017. The genome size and the two basic electron, proton dependent metabolic reaction systems of obtaining of ATP, International Journal of Current Research, vol 9, issue 06, pp. 52771-52774.

Ambaga, M. 2017. The membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance and the evolution based biological mechanism of oxygen utilization –ATP making bioenergy systems, *World Journal of Scientific Research and Review,* 2017.vol.5, № 3,march,pp.8-13.

Ambaga, M. 2017. The membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance and the evolution based biological mechanism of organ formation, *World Journal of Scientific Research and Review,* vol.5, № 3, march, pp.1-7.

Ambaga, M. 2017. The membrane - redox potentials three - state line system dependent - full 9 stepped cycle of proton conductance as the universal metabolic formula and the development of all medical thinking during last 3000 years, *Asian Journal of Science and technology*, vol.08,Issue,03,pp.4485-4488,March,

Ambaga, M., Kogan, A.K. and Kudrin A.N. 1984. Correlation link between the size of limithrophe area and the level of radically free pereoxide oxidation of lipids within evolutionary infarct area with rats La sente Publique, 27(4) 315-327.

Ambaga, M., Tumen-Ulzii, A. 2015. The life become dependent from the presence of electrons and protons, which were formed during events called big bang 15 billion years ago, electrons and protons sets the stage for formation of life in the universe

Ambaga, M., Tumen-Ulzii, A. 2016. Integrated NCM medicine with s-NCM new knowledge, lambert Academic Publishing

Ambaga, M., Tumen-Ulzii, A., 2017. The full 9 stepped cycle of proton conductance and antispiral-like evolutionary back steps from second late evolution time equation to first early evolution time equation during some pathology, *International Journal of Current Research,* vol 9, issue 07,pp.54969-54972.

Ambaga, M.,Tumen-Ulzii, A. 2017. The full 9 stepped cycle of proton conductance and the formation of three zones with various degree of disturbances of clockwise normal flow of electrons and protons during shortage of donators and acceptors- *Asian Journal of Science and Technology,* vol.08, Issue,08, pp.5346-5349,

Murray, R.K, Granner, D.K. and Mayes, P.A., Harpers Biochemistry, twenty-second edition

Nick Lane and William F. Martin 2012. The origin of membrane bioenergetics *J.cell*, http://dx.doi.org/10.1016/ j.cell.2012.11.050.

****