

K-Na-K

Nuclear Transmutations Inside the Living Cell

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by

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Summary:

In this paper, we prove under controlled experiments with the PAP IMI Device -a strong Magnetic Pulse Generator, and with human subjects that potassium may increase in the presence of excess sodium. This suggests a sodium-potassium cold nuclear transmutation process takes place in Human Biology in the presence of oxygen and electrical excitation.

This fusion is the basis of understanding several other mechanisms and transmutations in Biology and Medicine. The exact reverse process also takes place in the living cell, leading to a triggered nuclear exothermic fission of K to Na and O that acts as an ordinary electronic positive-hole-conducting semiconductor. This "positive whole semiconductor" transmits signals in one direction in the axons of nerve cells, keeps the heart beating, the muscles moving and producing work.

Introduction

In a previous paper¹, we had made the hypothesis that a nuclear transmutation of Na to K takes place inside the living cell, maintaining its known trans-membrane potential. We had introduced this hypothesis to replace the paradoxical and contradictory unproven hypothesis of Na-K pump or exchange of biology.

Our hypothesis was based on Louis Kervran's⁶ and on H. Komaki's⁷ biological findings as well as to the following facts:

1. In 1964, G. Oshava and M. Torii¹ (OT) proved in an experiment that cold fusion of Na to K is possible. OT took 2.3 mg of Na, put it in a vacuum tube, 20 of cm long and 2 cm in diameter, and sealed it. They ran electrical discharges of 60 watts through it for 30 minutes. After stopping the discharges, they inserted Oxygen in the sealed tube with the electrically treated Na. A second later Na transmuted to K, according to the exothermal* equation:



This experiment proves that if Na is first treated electrically, apparently its nucleus gets into an excited state, and secondly, when exposed to Oxygen, fuses with it to Potassium.

2. The "hypothesis" of Na-K process of exchange is unproved, according to Harold Hillman³. Biology in this case, does not distinguish between pure hypothesis, truth and findings.

This assumed artefact process is also called the active transportation of the cell membrane. It is also assumed that the specific rates of the "in" and "out" exchange of

Na and K are different for the two atoms. Specifically for 3 atoms of Na out, 2 atoms of K come in, by an artificially assumed specific “picking up” structure of the cell membrane in the ratio 3/2. Therefore, it is believed that more positive Na⁺ ions come out than positive ions K⁺ go in. Thus, it is assumed that a net of positive charge is coming out at a rate of 3/2 for every K⁺ going in.

This way, standard Biology attempts to explain the cell’s trans-membrane potential and its relation to the content of K⁺ inside the cell as a difference in the “in and out” rates for Na⁺ and K⁺, and by an artefact “picking up” mechanism of the cell membrane. It is doing so, “*having no other means of explaining the phenomenon*” excluding as *unthinkable, the case of cold fusion inside the human and animal cell.*

Biology is thus accepting a hypothesis with the obvious contradictions of expected depletion and saturation respectively, as well as, with an unlike mechanical action of the membrane, requiring a precise synchronicity and selectivity of cog wheels.

3. It is experimentally found (and this may be thus considered a fact) that for the charge of the trans-membrane potential, energy is required, as it should be expected. This energy was found (Skou² 1957) to be supplied by an exothermic consumption of a substance inside the cell called ATP. ATP is produced or actually reformed by a reverse process of energy which is supplied by the so-called Krebs’ circle. Krebs’ circle is powered by the burning of glucose inserted to the cell by insulin.

It is also known that the correct concentration of Na⁺ and K⁺ inside and outside the cell is responsible for the normal trans-membrane potential 60 to 70 mvolts and the normal vitality of a cell. A dead cell equalizes by osmosis alone the “intra and extra” cellular Na⁺-K⁺ concentrations and drops its trans-membrane potential to zero. The normal “intra and extra” cellular concentrations are: outside cell Na 145 mM, K 4mM, inside cell Na 12 mM, 139 mM.

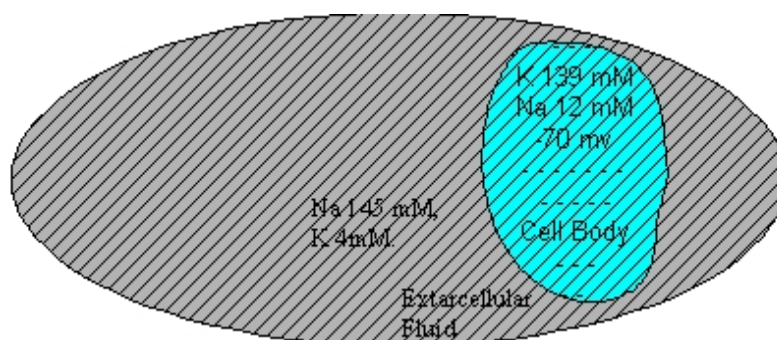


Figure 1 Shows the K and Na distribution inside and out side the cell. The particular k-Na distributions cause a potential difference of the order of -70mv, between the interior of the cell and the extra cellular matter. This potential is called the trans-membrane potential. This potential is a key motive force for the cell intakes and metabolism. Lack of TMP for the cell causes for the cell to be in the state of death

4. Below we report the applications of Bio Magnetic Generator PAP IMI, by the Medical Doctor and Bio-Pathologist Ilias Basteas, 7, Semitelou Street, Athens Greece, tel.: ++301-748 9246.

The device settings were at low intensity, 70% of maximum pulse strength. Each session consisted of 888 magnetic pulses at about 80 Joules each, dispersed on the exposed area of about 30 cm X 30 cm.

The blood tests performed right before and right after the PAP IMI exposures were as follows: Analysis of ions E, Iá, Ca, Mg, Fe. General Blood Analysis: Sugar, Urea, Creatinine, Uric acid, Transaminase, Chlertirine, Phosphatase, Whirte Blood Cells, Poly-monokaryons, Megalokaryons, losinophytes, Basophily, Immunoglobins: Éga, Igb, Igm.

28 (7x4) Cases of Osteoarthritic Pain, Osteathritis or Pain were testes were as follows:

a) Patient H.M. age 65.

Case of Osteoarthritic pain due to pressure of nervous roots.

Pain ceased permanently since the first session of 20 minutes exposure by the Bio Magnetic Pulses of the PAP IMI Device at the location of pain at full power at about 2-3 pps. The only clinical observation-effect was a 12 hour duration sensation of tiredness. The only laboratory change before and right after exposures concerned the maximum observed increase of K in the serum of blood which increased from 4.3 mM to 4.5 mM and at the same time the decrease of Mg from 2.01 mM to 1.97 mM during the session as well as a small temporal decrease of Iga, Igm, Igg,(156 to 149, 1045 to 1006 éáé 68 óå 61 mM which came back after 4 months, after the termination of PAP IMI exposures 4 sessions in 4 weeks. In the subsequent 3 sessions there was a lessen to no K increase.

b. Patient P.D. age 58. Osteoarthritis of the Hips since long time with strong pains and unsuccessful painful maintenance operations.

Patient received 4 sessions PAP IMI local treatments in 4 weeks. From the very first local treatment, there was an impressive result with an immediate significant reduction of pain, which in the subsequent session vanished completely. The absence of pain lasted months after the end of treatments. The only significant laboratory change before and after concerned the increase of K in the serum from 4.9 to 5.9 mM maximum in the first session, with simultaneous increase of Mg of the serum from 2.10 to 2.20 mM. In the subsequent 3 sessions there were lessen to no K changes.

c. Patient P.K. age 30. Ankylosis - spondylitis (4LA B 27 +). Patient had 3 sessions and discontinued for other reasons the scheduled treatments for a later time. Patient had immediate pain relief, however, pain was coming back the 2nd and 3rd day after each treatment. Pain also changed location. K remained unchanged.

d. Patient I.D. age 60. Perichondritis of left Tibia of Traumatic Etiology.

Patient had 4 sessions. Patient had significant reduction of pain with the first session and a complete disappearance of pain after the second session. There was K increase from 4.1 to 4.4 mM, in the first session. No other change was observed. In the subsequent 3 sessions there was a lessen to no K increase.

e. 3 Patients, young men with repetitive adnasal infection during the last 3 -5 years. No immediate symptoms relief was observed, as well as, no clear K increase or decrease was found.

Experimental Conclusions and Synopsis of Results.

1. The increase of K in the serum occurred in 65% of all cases. In all subcases -100% - that the pain ceased almost immediately and permanently, there was a clear K increase. In the rest cases that there was no K increase, pain came back after a few days. This indicates a strong correlation between permanently relieved pain, increase of K and PAP IMI exposures.
2. The K increase ranged from 0.2 to 1 mM/L maximum, assuming this increase was uniformly distributed in the blood stream of an average of 6 L, during the 5 minutes of treatment, a net increase of 0.2 to 40 mgr maximum of new K occurred in the blood after 888 pulses within 5 minutes exposure time over an inflammatory area of 20X20 cm².
3. The fact that no systematic similar increase or decrease was found for Mg, as well as the fact that the K increase was found in distinct cases of immediate and permanent pain relief indicates that the increase of K in the 65% of cases, is not due to systematic errors in the performed blood analysis.
4. A moderate relaxation of 4 to 6 hours duration followed most all cases.
5. In all cases, there was an immediate reduction of pain, irrespectively of the etiology of pain.
6. It is significant to note in some cases the fact of a pain migration from the area of application to a neighboring area, mainly in the case of neuralgic pain.
7. The phenomenon⁹ of K increase by PAP IMI exposures is found to be more enhanced, when cells are in a state of oedema or inflammation which are known to contain higher concentration of Na inside the membrane of the cell. At the same time, a drastic reduction of edema and inflammation is found to occur, which indicates a drastic reduction of sodium and a simultaneous increase of K inside the cell. These findings make the device characteristically known to be associated with one of the most, or in certain cases, the best anti-inflammatory and edema reduction method. In PAP IMI exposures to inflammatory or edema cases, excess K accumulates in the blood stream, which under normal kidney function is immediately discharged from the body by the kidney functions and urination.

This is a decisive observation, for it clearly proves a significant increase of production of K, in case of an increased concentration of Na associated with an inflammation or oedema which is exposed by appropriate (PAP IMI) electrical pulses to enable the transmutation of Na to K!

The Equation of life:

Under the observation and the circumstances of 1, 2, 3, 4, 5 and particularly under the specific new findings of 4, we come to a proof that the unproved hypothesis of Biology^{2,5} for the so called sodium-potassium pump is a wrong and forced

assumption based on the ad hoc wrong principle of no *"nuclear transmutations may occur in Biology"*.

On the other hand, a continuous transmutation of Na to K



inside the cell, seems to explain all the Na-K physiology of the cell.

This process restores the energy of the living cell in the form of trans-membrane potential.

The exact role of the membrane's electrical energy or the externally supplied electrical energy, the separate role of the ATP energy, as well as the role of K to the trans-membrane potential-TMP of the cell, the relation of TMP to the cell metabolism and proper function and cell energy, will become clear in the following.

It is well known that although K is a bigger atom than Na. Na's mobility should have been higher than K's. However, Na hydrates with 6 atoms of H₂O, K does not. Thus Na+6H₂O is becoming extra large and thus Na's mobility is finally much less than K's. Thus once Na is inserted by osmosis into the cell and transmutes into K; the naked K escapes by osmosis more rapidly through the cell membrane, due to its smaller size and thus higher mobility. This causes an imbalance to the electrical charge concentrations, for positive ions may escape faster out under the vehicle of K ion, than they are inserted as Na ions. This naturally explains, for as long as Na transmutes to K inside the cell, why the cell loses positive charge and becomes more negative with respect to its environment, until it reaches an equilibrium value of negative potential to retard the exit of K⁺ and to increase the input of Na⁺ and other positive ions from the extracellular space.

The trans-membrane potential difference, thus created, powers metabolism of the cell by electrostatically attracting other materials into the cell- a generally known phenomenon as electroinsertion. Further, the trans-membrane potential enables the nuclear transmutation of Na to K by preparing the Na nucleus during its crossing the field across the membrane, in case of a normal TMP present which is of the order of 10 Mvolts/m.

SPT maintains TMP, and TMP maintains SPT in an auto-catalysed, maintain or enhance one another mode.

A cell in the state of death -known to have no trans-membrane potential, may not initiate Na to K fusion and may not acquire the lost potential. Thus, the state of death with no trans-membrane potential for the cell is an irreversible state of no metabolism.

The role of insulin enhanced by adrenaline, secreted from the adrenal gland (situated on the top of kidneys) is better understood, as a mechanism of controlling ATP, which completes the fusion of Na to K, thus controlling the rate of metabolism and the rate of vitality of the cells of the body, in respect to the adrenaline triggered by the state of the brain and eventually the state of mental perception and activity.

In case of an increased activity of SPT caused by the adrenal gland, the kidneys are also required to be alerted by the same mechanism that triggers adrenaline, to quickly discharge as nuclear ash, the expected increase of K, thus maintaining the balance of low K concentration in the outside the cells environment; and to prevent reinsertion of mobile K into the cells by osmosis and electroinsertion; and thus to prevent the annihilation of TMP; and thus to prevent the cell death by lack of its energy resource. This makes understandable the reason of the positioning the adrenal gland on the top of the kidneys.

Understanding Life and Death and its Definitions:

Based on the Na-K transmutation and the described self- catalysed mechanism, we may easily realize for the first time the following:

The maintenance of life is understood by the mutual catalyzation of fusion of Na to K, resulting in the support of trans-membrane potential which in return enables the Na-K fusion.

On the other hand, the irreversibility from the “death” state to “life” state for the cell is clearly understood, as in the death state, the “first” electrical excitation by the cell membrane, i.e. TMP, is missing to catalyse or prepare the nucleus of Na to transmute to K and maintain farther the TMP, enabling subsequently metabolism.

A system like a cell without a trans-membrane potential is in a state without life. Such a cell, obviously under no circumstances of its own, can achieve a trans-membrane potential, unless an external and outside to it system, -creator, mother system-inherits or gives to it the first trans-membrane potential or life.

A great number of other biological and medical functions are better understood by similar nuclear processes. In particular the reverse to the above nuclear fusion is the nuclear fission:



which is of fundamental importance in nerve signal transmission.

For example, it is very easy and elegant to understand nerve conduction by electrical impulses, a phenomenon described in a very lengthy, complicated, and very little understood and contradictory way by standard Biology⁵.

Nerve Cell Description:

Most nervous cells contain four distinct regions, which carry out specialized functions of the cell: the cell body, the dendrites, the long axon, and the specialized axon terminals. Nervous cells and their parts are separated by a membrane which encloses more or less the same ion concentration as the other cells. The nervous cell membrane carries a similar trans-membrane negative potential of 60 to 70 mVolts, called the resting potential. There is no reason to believe that the origin of the more or less similar trans-membrane potential is different than other cells. A nervous cell is specialized to transmit an electrical impulse or signal along its long axon only in a particular direction like a semiconductor diode or transistor.

The cell found in the normal state potential of 60 to 70 mVolts is said to be in a resting state as every other cell. The nervous cell has the ability to raise the resting negative potential momentarily to +20 to +30 mVolts in a region which suddenly changes composition from K to Na, and which travels along the axon of the nervous cell. Thus, the cell is transmitting a signal from left to right by the motion of Na spot inside of K sea, as shown in the figure 3.

The nervous cell transmits a positive signal as an electrical impulse as soon as the such positive impulse arrives at the synaptic body of the cell, it is of a particular threshold and the cell is rested and prepared to guide a new impulse along its axon , only in one direction. These are more or less basic experimental facts for the nervous cell, accepted by every body. The trouble for Biology starts when Biology attempts to explain the mechanism of impulse conduction , in particular the almost instantaneous formation of Na inside the K concentration in a very short time interval.

Standard biology assuming as an impossibility the reverse of nuclear fusion of Na and O to K, that is the equation of



has no other choice than to assume a lateral exchange occurs of Na with K as in the case of Na-K pump. The adhoc exchange attempts to explain the momentary formation of Na inside the K sea by a spontaneous exchange of Na and K inside out of the cell axon, followed by an unexplained reversed process in zero time or return of Na out where it came from milliseconds ago.

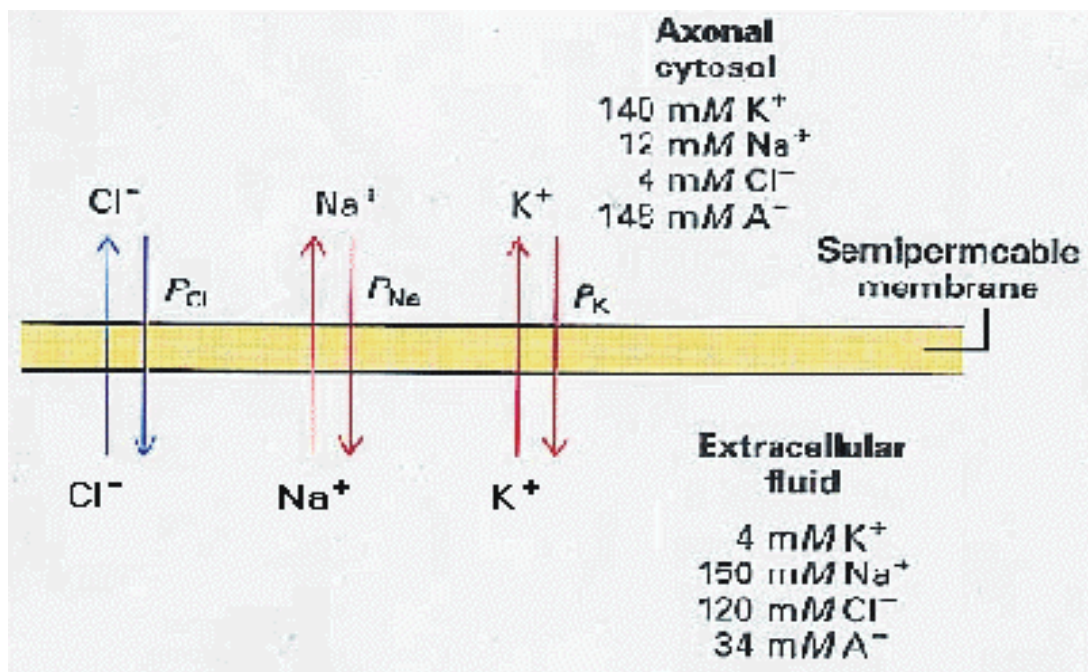


Figure 2. Classical Biology picture for a nervous cell axon. Biology in order to explain the instant presence of Na inside the sea of K, assumes that a spontaneous migration-exchange occurs laterally and from outside-insides the cell, as shown. However, this assumption does not imply and does not explain charge transportation in the longitudinal direction-the axonal direction of the observed electrical impulse.

However, this complicated and improbable assumption involving adhoc lateral motions of charges fails to explain to the first degree the transverse motion of charges. For any lateral motion of charges may not result to charge transportation in a different and in particular perpendicular direction. Charge velocity has zero component perpendicular to its motion or at least the assumed way is the most inefficient and most complicated assumption to be made. For example, it would be far more believable as well as electrically expected that a positive electrical impulse arriving at one end of an axon tube containing electrolytes such as K, would cause electrolysis, and would cause a current impulse to move from left to right any way. The puzzle is how and why the instant presence of Na inside the sea K. The lateral exchange of Na seems redundant, resulting in no significant current in the particular direction, other than the current expected by ordinary electrolysis!

However, under the circumstances described by Biology and allowing first the nuclear fission:



second its reverse fusion:



a natural explanation of the mechanism may follow.

Naturally, an electrical impulse conduction along the axon of a nervous cell, may first be explained by electrolysis of oxygen and the simultaneous creation of Na, both formed by the first equation in a sea of K, as soon as a positive and only positive impulse arrives at the synaptic area of the axon of a particular threshold and in a time the axon's K concentration is restituted, as expected. It is apparent an impulse with the wrong polarity negative will not be conducted along the axon.

The momentary formation of Na which restitutes back to K is easily understood and expected as oxygen may always flow from right to left formed by the fission of K on the right and the action of the electrolysis which will make it to flow to left. Thus as oxygen travels from right to left will form locally Na by its momentary absence until it is replaced by more oxygen from the right, causing Na spot to reach the very end to the right. After this the axon cell will be filled only with K ready to receive another pulse.

This mechanism is a typical semiconductor positive hole conduction which will allow only positive impulses to travel from one end to the other.

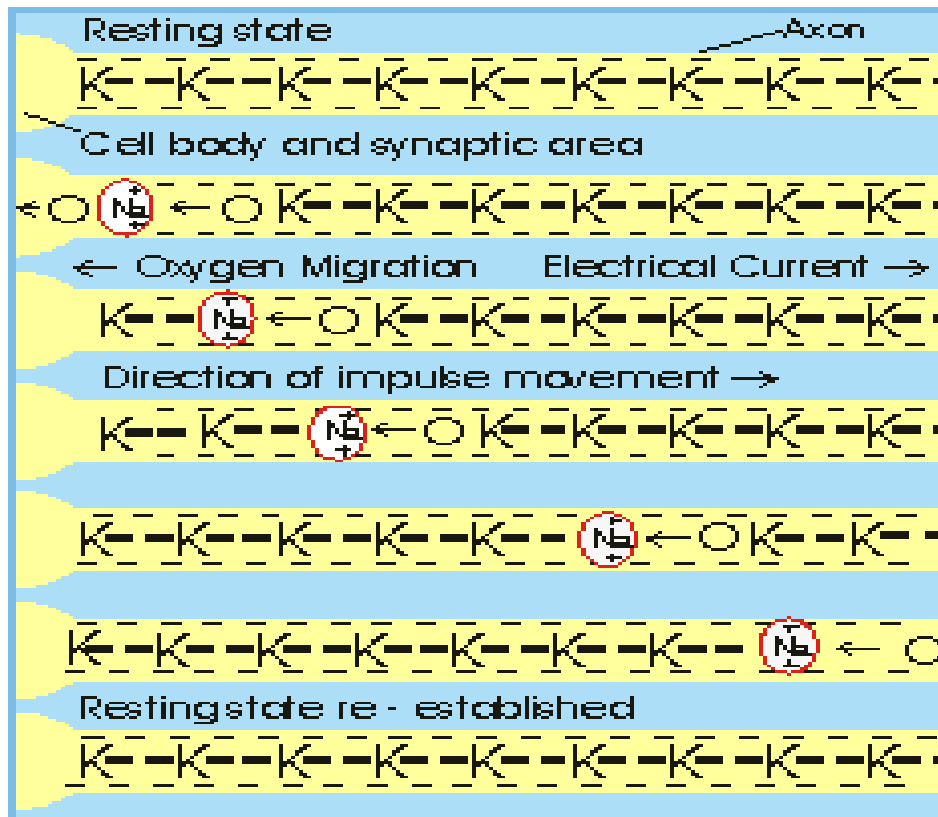


Figure 3 - A nerve cell axon based on K-Na-K nuclear transmutations . Distribution of K and transmembrane potential is the same as in every other cell. This is called the resting state of the (nerve) cell. However, the arrival of a positive impulse on the left end of the axon, causes oxygen from nuclear fusion of K to Na and O, to migrate. As soon as this fission occurs oxygen ions would have migrated to the positive anode, and Na ions would have been formatted to the right towards the cathode to the right. This formation is synergetic to any normal electrolysis which would have caused motion of Na towards the cathode, any way. However, subsequent oxygen will turn back the Na region to K region by nuclear fusion, leaving to their right a new area of Na by nuclear fission. Subsequent nuclear fission of K to Na and O, as well as fusion back to K causes positive electrical charges by Na to travel to the right by missing negative charges by the migration from right to left of negative oxygen ions. This causes a positive "hole" to travel from left to right. This nuclear fusion and fission with the resulting motion of lack of electrons from left to right is an identical mechanism of current conduction by a positive hole semiconductor, known in modern electronics!

As soon as this simple nuclear Fusion-Fission of K-Na-K forming the basic concept of a semiconductor, is understood and realized, then it may easily be expected and extended to reach the transistor concept, semiconductor gating and the other modalities of modern electronic circuitry leading to logical circuits and gating transmission.

Similarly the exothermic character of the fission equation related to nervous cells specialized in muscular function, may easily explain the energy release needed for a muscular function to perform work. Such applications will presented in a second paper followed the present one.

REFERENCES

Roberto Monti, "Fusione Fredda e Relativita Eisteiniana: Stato dell'Arte" Reprint, vol. n. 9, p. 71, Societa Editrice Andromeda, via S. Alende 1, 40139, Bologna, 1996.

G. Thomopoulos, "Introduction to Cell Biology", p. 130, University Studio Press, University of Thessalonika, Thessalonika, 1986.

Harold Hillman, "Parafraud in Biology", Science and Engineering Ethics, V.3, n.2, p.122, 1997.

H. Hillman and P. Sartory, "The Living Cell - Reexamination of its Fine Structure", Packard Publishing Limited, Chichester, West Sussex, UK, 1980.

J. Darnell, et al., "Molecular Cell Biology", Second Edition, p. 531-543, Scientific American Books, Inc., New York, 1990.

Lois C. Kervran, "Biological Transmutations", Swan House Publishing Co., NY 11223.

H. Komaki, Rev. Pathologie Comparee, 67, 213, 1967; 69, 29, 1969

H. Komaki, Proceedings of the 4th International Conference on Cold Fusion, Dec, 1993.

P.T. Pappas, "PAP-IMI Cases Reports", 1990-1998.

S. Goldfein, "Energy Development from Elemental Transmutations in Biological Systems", Infinite Energy, Issue 18, 1998.

P. Pappas, Seventh International Conference on Cold Fusion, Vancouver, 19-24 April, 1998; Proceedings of the Seventh I.C.C.F, pages 460-465, August 1998; Journal of New Energy, vol. 3, No. 1, pages 5-9, Spring 1998; NewsLetter, Vol. 10, No. 1, pages 21-24, December 1998, Planetary Association for Clean Energy; New Energy News, Monthly Newsletter of the Institute for New Energy, vol.6, n.6, page 11-12, March 1999.