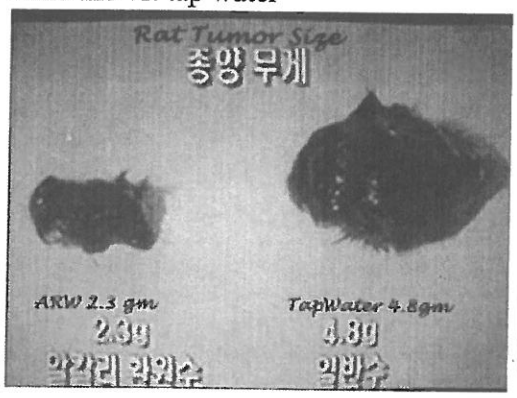
šarminis vanduo - vėžio kyrantis!

Alkaline Water & Cancer Research

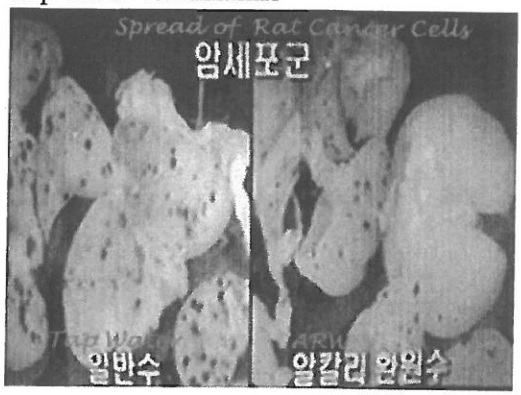
Cancer research: Alkaline Water (Electrolyzed Reduced Water) 6 recent abstracts

Anticancer Effect of Alkaline Reduced Water

Alkaline vs. tap water



Tap water vs. Alkaline



Kyu Jae Lee, Su Ki Kim, Jin Won Kim, Hyun Won Kim, Yonsei University, Wonju, Korea, Sangi University, Korea

Summary:

☒ Mineral Alkaline Reduced Water (ARW) strengthened immune system.

☒ Mineral Alkaline Reduced Water suppressed the growth of cancer cells transplanted into mice, demonstrating its anti-cancer effects.

☒ Reduced levels of sugar.

☒ Mineral Alkaline Reduced Water made HDL ratio high as well as LDL ratio low

HDL (High-Density Lipoprotein) - Also known as "good" cholesterol, already used and unused cholesterol and taking them back to the liver as part of a recycling process

LDL (Low-Density Lipoprotein) - Also known as "bad" cholesterol, Higher levels of LDLs are associated with a greater risk of cardiovascular disease. Are you too acidic? Free PH Test

Inhibitory effect of electrolyzed reduced water on tumor angiogenesis

Biological & Pharmaceutical Bulletin. 2008 Jan;31(1):19-26

Ye J, Li Y, Hamasaki T, Nakamichi N, Komatsu T, Kashiwagi T, Teruya K, Nishikawa R, Kawahara T, Osada K, Toh K, Abe M, Tian H, Kabayama S, Otsubo K, Morisawa S, Katakura Y, Shirahata S.

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Vascular endothelial growth factor (VEGF) is a key mediator of tumor angiogenesis. Tumor cells are exposed to higher oxidative stress compared to normal cells. Numerous reports have demonstrated that the intracellular redox (oxidation/reduction, ORP) state is closely associated with the pattern of VEGF expression. Electrolyzed reduced water (ERW) produced near the cathode during the electrolysis of water scavenged intracellular H(2)O(2) and decreased the release of H(2)O(2) from a human lung adenocarcinoma cell line, A549, and down-regulated both VEGF transcription and protein secretion in a time-dependent manner. To investigate the signal transduction pathway involved in regulating VEGF expression, mitogen-activated kinase (MAPK) specific inhibitors, SB203580 (p38

MAPK inhibitor), PD98059 (ERK1/2 inhibitor) and JNKi (c-Jun N-terminal protein kinase inhibitor) were applied. The results showed that only PD98059 blocks VEGF expression, suggesting an important role for ERK1/2 in regulating VEGF expression in A549 cells. As well, ERW inhibited the activation of extracellular signal-regulated kinase (ERK) in a time-dependent manner. Co-culture experiments to analyze in vitro tubule formation assay revealed that A549 cell-derived conditioned medium significantly stimulated the formation of vascular tubules in all analyzed parameters; tubule total area, tubule junction, number of tubules, and total tubule length. ERW counteracted the effect of A549 cell-conditioned medium and decreased total tube length ($p<0.01$). The present study demonstrated that ERW down-regulated VEGF gene transcription and protein secretion through inactivation of ERK.

Suppression of Invasion of Cancer Cells and Angiogenesis by Electrolyzed Reduced Water.

From: The Society for In Vitro Biology
2004 World Congress on In Vitro Biology, May 23, 2004

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Invasion and metastasis of cancer cells are main causes of cancer patient death.

Cancer cells also secrete VEGF, which stimulates angiogenesis to develop tumor tissues. The suppression of invasion/metastasis and angiogenesis is an urgent target for prevention of cancers.

Electrolyzed reduced water (ERW) is anti-oxidative water, which contains high concentration of dissolved hydrogen and can scavenge intracellular reactive oxygen species (ROS). ERW contains a small amount of platinum nanocolloids as atomic hydrogen (active hydrogen) donors and ROS-scavengers.

Here, we report the effect of ERW on invasion of human fibrosarcoma HT1080 cells and HT1080 cells-induced angiogenesis. ERW was prepared by electrolysis of 0.002 M NaOH solution using a batch-type electrolysis device (Type TI-200S, Nihon Trim Co., Osaka, Japan).

ERW scavenged hydrogen peroxide both in cells and medium. The RT-PCR and zymographic analysis revealed that ERW suppressed the expression and activation of matrix metalloproteinase-2 (MMP-2). ERW was estimated to inhibit invasion by suppressing the phosphorylation of p38 MAP kinase. ERW also suppressed the expression and secretion of VEGF in HT1080 cells by suppressing the phosphorylation of ERK MAP kinase. ERW suppressed the HT1080 cells-induced angiogenesis by human blood endothelial cells, suggesting that ERW may be useful for prevention and treatment of cancer.

Electrolytic reduced water suppresses the invasive metastasis of human fiber sarcoma cells.

From US patent #6475371, published Nov. 11, 2002

Abstract: Electrolytic reduced water free of hypochlorous acid and chlorine gas is provided which is effective for cancer treatment. Water including NaOH is subjected to electrolysis. Electrolytic reduced water obtained at a cathode electrode side has been found to suppress metastasis of cancer cells. The water had no effects on growth of healthy cells during a one-week test.

Extract:
The evaluation results of cancer cell metastasis inhibiting effects of the obtained electrolytic reduced water (with electrolyzed degree of 5 in Table 1) will be described.

FIG. 3 shows the inhibiting effects of the electrolytic reduced water against highly metastatic human fiber sarcoma cell strains HT1080 in a metastasis model system in vitro. Here, HT1080 cells available

from a cell bank (e.g., JCRB Cell Bank or ATCC (in U.S.A.)) were employed.

The HT1080 cells were cultured in 10% fetal bovine serum added MEM medium at a temperature of 37.degree. C. under 5% CO.sub.2 /95% air environment. A chemotaxel filter (pore size: 8 .mu.m) was coated with matrigel of 25 .mu.g/filter. Sub-confluent HT1080 cells were suspended in the MEM medium containing 0.1% bovine serum albumin (BSA) and the number of cells was adjusted to 4.times.10.sup.5 /ml. 200 .mu.l of the resultant was added to a chamber in its upper room. Immediately after addition of the cells, 700.mu. of the MEM (Minimum Essential Medium; medium including the least possible amount of nutritious ingredients) containing 10 .mu.g/ml of fibronectin was added to the chamber in its lower room (having a 24 holes plate) (a 24 holes plate side), and cultured in a CO.sub.2 incubator. After six hours have passed, the chamber was taken out. Cells were removed from the upper surface of the filter with a cotton bud, and moved to the 24 hole s plate containing WST-1 (an indicator that changes its color depending on metabolic ability specific to living cells, or the number of living cells). After culture for 16 hours, absorbance at 450 nm was measured. Referring to FIG. 3, "ctrl" represents the result when purified water was used, and "NaOH mix" represents the result when the electrolytic reduced water obtained with electrolyzed degree of 5 in Table 1 was used. As seen from FIG. 3, invasive metastasis of HT1080 cells is dramatically reduced in the case of NaOX mix compared to the case of ctrl.

This means that the electrolytic reduced water has suppressed the invasive metastasis of the human fiber sarcoma cells.

Suppression of Two-stage Cell Transformation by Electrolyzed Reduced Water/Platinum Nanocolloids.

From:
The Society for In Vitro Biology
2004 World Congress on In Vitro Biology, May 22-26, 2004. (presented May 23rd, 2004)

R. NISHIKAWA, K. Teruya, Y. Katakura, K. Otsubo, S. Morisawa, and S. Shirahata. Dept. of Genetic Resources Technology, Faculty of Agriculture, Kyusyu Univ., 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812-8581, Japan and Nihon Trim Co., Ltd, 1-8-34 Kita-ku, Oyodonaka, Osaka 531-0076, Japan.

According to the two-stage cell transformation theory, cancer cells first receive initiation, which is mainly caused by DNA damage and then promotion, which enhance transformation. Murine Balb/c 3T3 cells have widely been used for transformation experiments because the cells lo se contact inhibition ability when transformed.

Electrolyzed reduced water (ERW) is a health beneficial alkaline drinking water which contains high concentration of dissolved hydrogen and can scavenge intracellular reactive oxygen species (ROS).

We have revealed that ERW contains a small amount of platinum nanocolloids as atomic hydrogen (active hydrogen) donors and ROS-scavengers. Therefore, ERW containing synthesized platinum nanocolloids (ERW/Pt) can be considered as a model of strong ERW.

Here, we report that ERW/Pt can prevent transformation of Balb/c 3T3 cells. ERW was prepared by electrolysis of 0.002 M NaOH solution using a batch-type electrolysis device (Type TI-200S, Nihon Trim Co., Osaka, Japan). BALB/c 3T3 cells were treated with 3-methyl cholantrene (MCA) as an initiation compound, followed by the treatment with phorbol-12-myristate-13-acetate (PMA) as a promotion compound. Transformation focus was strongly suppressed by co-treatment of MCA/PMA and ERW/Pt. ERW/Pt suppressed the transformation at the stage of promoter but not at the stage of initiation, suggesting that it suppressed the augmentation of intracellular ROS by PMA.

Electrolyzed reduced water scavenges active oxygen species and protects DNA from oxidative damage.

Biochem. Biophys. Res. Commun., 234, 269174, 1997Dr. Sanetaka Shirahata, S. et al Graduate school of Genetic Resources Technology , Kyushu University , 6-10-1 Hakozaki, Higashi-ku, Fukuoka 812-8581, Japan.

It has long been established that reactive oxygen species (ROS) cause many types of damage to biomolecules and cellular structures that, in turn result in the development of a variety of pathologic states such as diabetes, cancer and aging. Reduced water is defined as anti-oxidative water produced by reduction of water. Electrolyzed reduced water (ERW) has been demonstrated to be hydrogen-rich water and can scavenge ROS in vitro (Shirahata et al., 1997).

The reduction of proton in water to active hydrogen (atomic hydrogen, hydrogen radical) that can scavenge ROS is very easily caused by a weak current, compared to oxidation of hydroxyl ion to oxygen molecule. Activation of water by magnetic field, collision, minerals etc. will also produce reduced water containing active hydrogen and/or hydrogen molecule. Several natural waters such as Hita Tenryosui water drawn from deep underground in Hita city in Japan, Nordenau water in Germany and Tlacote water in Mexico are known to alleviate various diseases.

We have developed a sensitive method by which we can detect active hydrogen existing in reduced water, and have demonstrated that not only ERW but also natural reduced waters described above contain active hydrogen and scavenge ROS in cultured cells. ROS is known to cause reduction of glucose uptake by inhibiting the insulin-signaling pathway in cultured cells. Reduced water scavenged intracellular ROS and stimulated glucose uptake in the presence or absence of insulin in both rat L6 skeletal muscle cells and mouse 3T3/L1 adipocytes. This insulin-like activity of reduced water was inhibited by wortmannin that is specific inhibitor of PI-3 kinase, a key molecule in insulin signaling pathways. Reduced water protected insulin-responsive cells from sugar toxicity and improved the damaged sugar tolerance of type 2 diabetes model mice, suggesting that reduced water may improve insulin-independent diabetes mellitus. Cancer cells are generally exposed to high oxidative stress. Reduced water cause impaired tumor phenotypes of human cancer cells, such as reduced growth rate, morphological changes, reduced colony formation ability in soft agar, passage number-dependent telomere shortening, reduced binding abilities of telomere binding proteins and suppressed metastasis. Reduced water suppressed the growth of cancer cells transplanted into mice, demonstrating their anti-cancer effects in vivo. Reduced water will be applicable to not only medicine but also food industries, agriculture, and manufacturing industries.

Anticancer Effect of Alkaline Reduced Water

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Abstract: Certain minerals can produce alkaline reduced water with high pH and low oxidation-reduction potential (ORP) when dissolved in water. Alkaline reduced water (ARW) showed significant anticancer effect. When B16 melanoma cells were inoculated subcutaneously and intra-peritoneally, C56BL/6 mice fed with ARW showed tumor growth delay and the survival span was significantly lengthened. ARW also showed the inhibition of metastasis by reducing the numbers of B16 melanoma colonies when injected through tail vein. The amount of reactive oxygen species (ROS) was very reduced when fed with ARW except for spleen, which is a major organ for immunity. Even for normal mice, ARW intake invoked systemic cytokines, such
as, Th1 (IFN-g, IL-12) and Th2 (IL-4, IL-5), suggesting strong immuno-modulation effect. Both ROS scavenging effect and immuno-modulation effect might be responsible for anticancer effect of alkaline reduced water.