

Health Care Promotion by Lifeceramics

(English Abbreviation Version)

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1. Research strategy

N. Suzuki

Search for human SOS physiological functions is tried by creating tools for the research from about 40 years ago. Suggestions for resolving problems were obtained due to findings of effects of radiation exposure at low doses on cultured human cells and human bodies. And then research products, educational systems and outreach activities in Environmental Biochemistry, Chiba University during the past 15 years are introduced. Our efforts have continued to identify factors related with human SOS responses based on previous findings of the response phenomenon in *Escherichia coli*. The response mechanism in a human body have been found to consist of serum factors and activation of proteases. The serum factors likely include cytokines, chaperones and their binding proteins, each of which intra-cellularly and extra-cellularly supervises cellular DNA repair and apoptotic functions. According to the stress conditions, the supervisors could regulate both error-free and -prone mechanisms to control genetic stability.

Due to the above results and their usage we could find out novel physiological effects of Lifeceramics on human cells and bodies. Thus, our trial and its fruits, presented here, will prove usefulness of Lifeceramics for human health care promotion..

2.Risk management of health care by SOS response of a human body N.Suzuki

As one of the first steps op cancer development there is a base-substitution mutation. In the mutation various kinds of molecules are involved. And the molecules' action is regulated by another molecules as a supervisor. Thus, the supervisors, cytokines, proteases and chaperones, could determine the fate of genes.

On the other hand, mutation is the prime mover of biological evolution. Therefore, the above supervisor could play an important role as the prime mover. All of these possibilities could be found by original research strategy, so-called human SOS biological science.

3.Possibility of liver function promotion by Lifeceramic N.Suzuki

Lifeceramics-treated water was examined whether it plays some roles on curing liver function disorder. Peripheral blood was obtained from volunteers who drank the water on the please. Blood was collected from 11

and 4 donors 10 and 30 days after drinking, respectively.

Results indicate the possibility that liver function disorders are cured after drinking the Lifeceramics-treated water.

4.Possibility of renal function promotion by Lifeceramics
N.Suzuki

Blood samples, reported at chapter 3, were used to examine whether Lifeceramics-treated water is useful for curing disorder of renal function.

Increased levels of urea N and creatinine were descend in 4 volunteers.

5.Possibility of suppression of fatty-acid metabolism disorder
N.Suzuki

Blood samples, reported at chapter 3, were used to examine whether Lifeceramics-treated water is useful for curing disorder of fattey-acid metabolism.

Increased levels of triglyceride was evidently decreased.

6.Possibility of promotion of clcohol metabolism function by Lifeceramic
N.Suzuki

Lifeceramics goods, available at shops, are made of ceramics Powder itself was examined for its effectiveness on alcohol metabolism. Dr. Dong Mei tried to estimate alcohol (EtOH) concentration in venous blood from rats after administration of ceramics powder and alcohol Sake. The concentration was increased after the administration and showed the highest from 1 h up to 2 h after that. However, the increased levels were lower at rats with ceramics powder than these at rats without the powder.

In human drinking Lifrceramics-treated water alcohol concentration in respiration air was increased depending on volume of the water drunk.

7.Suggestion of risk management for health care under stressful social conditions

(1)Thought-provoking of saliva testing for construction of stressless society

S.Sugaya

Test of saliva analyses activity is thought to indicate conditions of the

parasympathetic nervous system which responds to various stressors.

The present stressful society needs the test in order to build up the society where people can get rid of stress.

(2) Possibility of mitigation of stress conditions by Lifeceramics X.Tong&N.Suzuki

It is an interesting problem whether we can get rid of stress by drinking Lifeceramics-treated water. Dr. X. Tong evaluated stressful or non-stressful conditions of volunteers by estimation of amylase activity levels in saliva. The levels were decreased in 11 volunteers among 13 those tested. Therefore, it seems likely that Lifeceramics for drinking is useful for suppression of stress-building up.

8. Summary of Lifeceramic effectiveness in a human body . . . N.Suzuki

Based on the results obtained in the present study the following check points could clearly indicate the possibility of effectiveness of Lifeceramics-treated water on our healthy conditions: TTT for examination of liver function, urea N, creatinine, and CPK for examination of renal function, and triglyceride, total cholesterol and LDL cholesterol for examination of fatty-acid metabolism.

9. Effects of Lifeceramics-treated water on resistance to oxidative stress in human cells K. Kita

The cellular effects of lifeceramics-treated water on resistance to oxidative stress were examined using cultured human cells. The cells, cultured in medium prepared with lifeceramics-treated water, showed increased resistance to hydrogen peroxide-induced cell death. Resistance to X-ray-induced cell death was also slightly enhanced by the culture with the medium. In contrast, neither capacity to repair ultraviolet light C (UVC)-induced DNA damage nor resistance to UVC-induced cell death was enhanced by the culture with the medium. Hydrogen peroxide causes oxidative stress, and X ray also causes oxidative stress and the direct formation of DNA damage in human cells, whereas UVC causes direct DNA damage. Therefore, the present results suggest protective effects of lifeceramics-treated water against

oxidative stress in human cells.

10. Ability of lifeceramic-treated water to regulate expression of various genes T.Tanaka

MicroRNAs (miRNAs) are small non-coding RNAs that regulate gene expression by base pairing specifically with nucleotides in the 3' untranslated regions of target mRNAs or by directing mRNA degradation . MiRNAs play important roles in cell proliferation, apoptosis, and differentiation . In particular, miRNAs that regulate cell proliferation have been implicated in various cancers. We focused on a few miRNAs whose expression levels were altered by the addition of Lifeceramics-treated water in cell culture medium. Based on microarray analysis, we focused on two miRNAs (miR-381 and miR-431) whose expression levels were modulated in the cultured human cells. Furthermore, expression levels of GAS1 gene, one of cancer suppressor genes, were upregulated in the cultured cells. Thus, Lifeceramics-treated water may be useful for the suppression of tumor cell growth.

11. View---Creation of environmental medical care by application of Lifeceramics N.Suzuki

Based on human SOS biological science, methods to establish healthy conditions were found, such as Japanese Miso intake. Furthermore, forest-walking together with drinking Lifeceramics-treated water would be another valuable method. On the other hand, radio-active materials could be eliminated by Lifeceramics themselves. Thus, Lifeceramics will be applicable for protecting our health against undesirable environmental conditions.

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