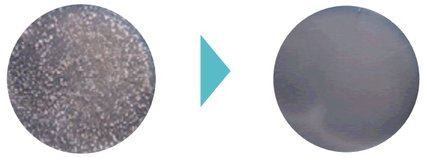
Quantum Water※1 Technical Data

※1 : Quantum Water refers to water obtained after it flows through the Hexagonal Field Converter.

1 Antibacterial Effect

The number of Escherichia coli was reduced by about 36% after the first hour and 100% in 24 hours resulting in no detection.



Initial state　　After 24 hours

The Salmonella count was reduced by 100% in 24 hours resulting in no detection.

Initial state　　After 24 hours

The number of Staphylococcus aureus cells was reduced by about 19% after the first hour and 100% in 24 hours resulting in no detection.

Initial state　　After 24 hours

The number of Legionella was reduced by 100% in 24 hours resulting in no detection.

Bacteria	Initial count (CFU/ml)	After 24 hours		
		Sample1	Sample2	Sample3
Escherichia coli	4.2×10^5	Not detected		
Staphylococcus aureus	4.5×10^5	Not detected		
Legionella	4.6×10^5	Not detected		
Salmonella	4.7×10^5	Not detected		

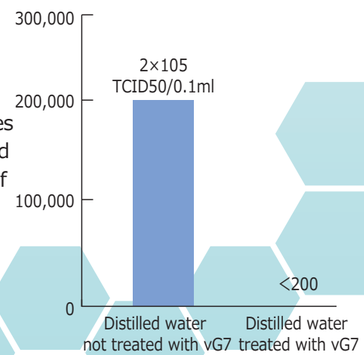
Antibacterial evaluation result (phenol coefficient test)
Test organization: Kyoto Microbe Laboratory

2 Effects on Norovirus

Norovirus is a genus of virus that causes viral gastroenteritis. It is transmitted by contact with feces or vomit from the infected or transmitted orally via dust from dry feces or vomit. It can also flow in a river and then accumulate in shellfish to cause food poisoning. We compared the number of remaining viruses between Hexagonal Field-Converted Water and commercially available sterilized distilled water.

【Experiment on testing the vG7 antiviral capabilities】

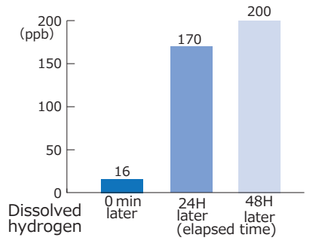
Sterilized distilled water treated by vG7 and sterilized distilled water without such treatment were mixed into a fluid obtained by diluting feline calicivirus, a substitute for norovirus. (Note: since no techniques have been found to artificially grow norovirus, feline calicivirus is used as a substitute.) The virus count was determined after a set period of time. The result indicated the distilled water treated by vG7 had a much higher effect for suppressing virus growth.



Hitoshi Watarai, Ph.D in veterinary science (Veterinary Immunology, Graduate School of Life and Environmental Sciences, Osaka Prefectural University)

3 Hydrogen Generation

It has been found that hydrogen prevents oxidation. Unlike water generated by other hydrogen water generators, Quantum Water naturally increases its hydrogen content that peaks 48 hours after water generation.



Dissolved hydrogen evaluation test

Test name		Dissolved hydrogen (ppb)
Quantum Water	0 minutes later	16
	24 hours later	170
	48 hours later	200

※Tested by the Society for Research in Water Science

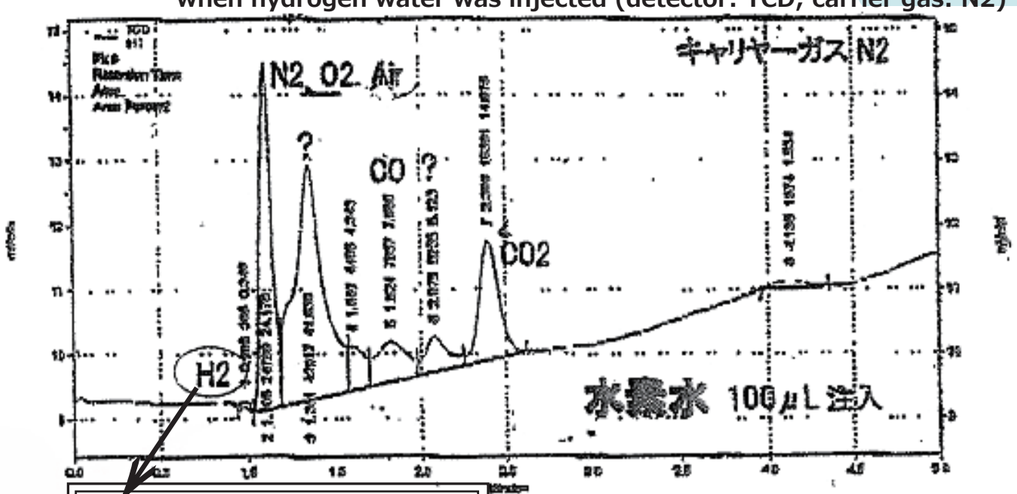
【vG7 Hydrogen Water (tentative name) trace gas component analysis result】

Sample : vG7 Hydrogen Water (tentative name) and distilled water
Analysis method : gas chromatography
Analysis condition: equipment unit (model GC-390B, GL Science Inc.)
Analysis column: GasukuroPack54 60/80 5m(a packed column that allows analysis of inorganic gas components)
Carrier gas: N2; 30.1 mL/min (to enhance hydrogen detection sensitivity)
Detector: TCD (a detector that senses changes in the thermal conductivity)
Injection temperature: 260°C (vaporizing temperature)
Detector temperature: 150°C
Column temperature: 40°C, 5 minutes (only for gases)
Sample volume: 100 µL (for both gases and fluids)

Tap water contains virtually no hydrogen.
It is seldom detected even in distilled water.

Result		
	Hydrogen (H2) content in vG7 Hydrogen Water (tentative name)	About 1.6 ppm
	Carbon dioxide (CO2) content in vG7 Hydrogen Water (tentative name)	11 times higher than distilled water

【Graph】: Gas chromatography mass spectrum when hydrogen water was injected (detector: TCD; carrier gas: N2)



Proof of hydrogen existence

Quantum Water Technical Data

4 Achromatization (Pigment Degradation) Effect

A dye was dissolved in tap water and processed by a circulating water system with the vG7 unit attached. A loss of pigment-based color from the water was observed. Longer water circulation through the vG7 unit resulted in lower visibility of the color.

Examination of the relationship between the circulation time and light absorption of the solution indicated that the light absorption decreased linearly with respect to the water circulation time.

This fact suggests that Quantum Water has properties to degrade pigments that are organic molecules. The degradation capability is however not so high; it can degrade only a very small amount of pigments (1×10-6 mol/L) in a day. Note that, the degradation further slows down in a very thin dye solution after most pigments have been degraded.

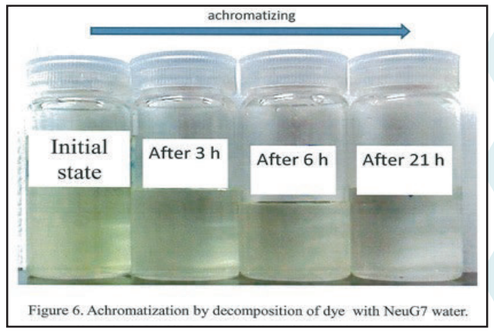
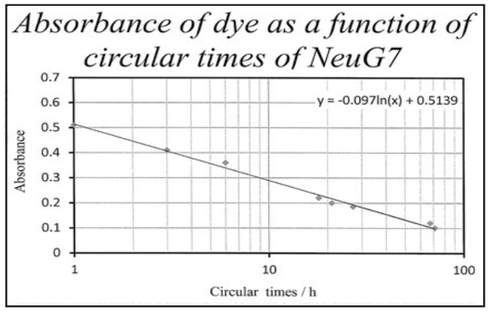
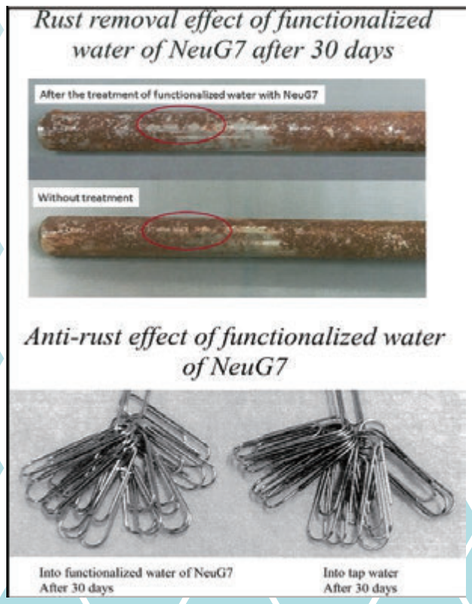


Figure 6. Achromatization by decomposition of dye with NeuG7 water.



Prof. Ujiie, Oita University

5 Rust Removal Effect



A rusted metal bar was put in Quantum Water to examine how it changed. It was found that rust on the bar decreased when it was dipped in Quantum Water. The same effect was confirmed with rust on a water pipe; rust fully covering a water pipe disappeared after the pipe was dipped in Quantum Water. Such a decrease may have been attributed to a reaction in which Quantum Water supplies electrons to the rust. In another experiment, paper clips were dipped in tap water and Quantum Water.

The clips in tap water developed rust over time. Meanwhile, no rust developed on the clips in Quantum Water.

This difference may be created by the fact that Quantum Water, obtained by putting tap water through the vG7 unit, has a reduction effect.

Prof. Ujiie, Oita University

6 Quantum Water Permeability of Aquaporin

Aquaporin (AQP) is a porous protein in the cell membrane. More specifically, it is a type of membrane intrinsic protein in the major intrinsic protein (MIP) family.

Its function relates to capturing water into cells because it selectively conducts water molecules.

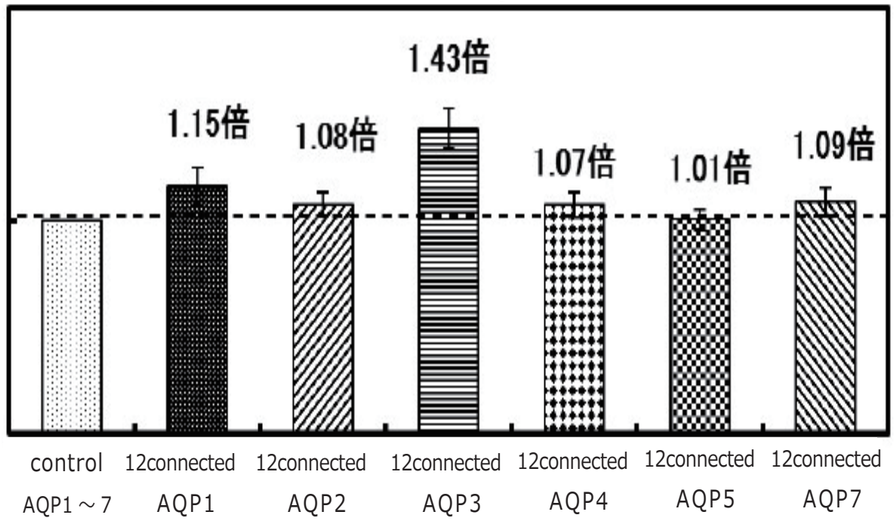
AQP is called a water channel that selectively conducts water molecules but no other substances or ions. A system like AQP for transporting water molecules is essential in many cells in the human body, some types of bacteria, and organic life such as plants.

---------- Cited from Wikipedia on Aquaporin

Quantum Water was generated by 12 connected units and its permeability of aquaporin was summarized in one figure. Relative permeability levels were presented when the control (water permeability of aquaporin) was set to 1.

Compared to the control, Quantum Water permeability of AQP 1 was 1.15, AQP 2 was 1.08, AQP 3 was 1.43, AQP 4 was 1.07, AQP 5 was 1.01, and AQP 7 was 1.09. Quantum Water indicated higher permeability for all AQPs with AQP3 being particularly high.

【Graph】: Relative permeability of Quantum Water generated by 12 connected units to AQP



Kitagawa Science General Research Institute LLC
Yoshichika Kitagawa

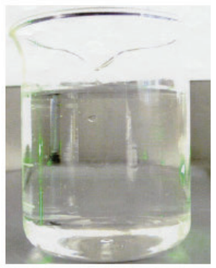
Quantum Water Technical Data

7 Laser Scattering - Quick Check of the Existence of Fine Particles -

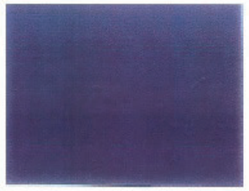
Quantum Water

In Quantum Water, the laser line (green) is visible due to Tyndall scattering. Quantum Water contains fine particles.

Tap water



No laser line is visible (no light scattering). Tap water does not contain fine particles.

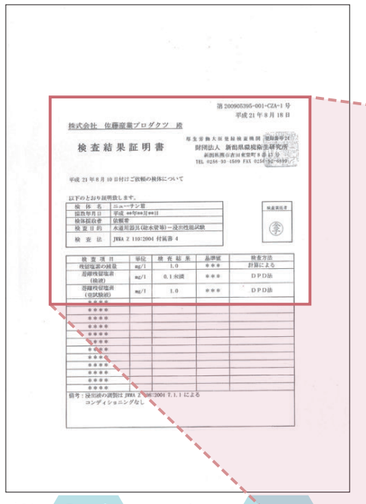


When the photos above are expanded to the A4 size, the magnification is about 1,100 times, and water looks like the micrographs on the left. In Quantum Water, air bubbles with the size of 0.5 μm to 0.81 μm are seen. According to Nanosight data, it also contains particles with the size of about 500 nm (0.5μm).

↑Round objects are air bubbles

Survey by a national university on July 4, 2016

8 Reduction of Free Chlorine in Tap Water



The result of remaining free chlorine (test solution with Neu-SUN KUN) was reduced chlorine to less than 0.1mg/L.

第 200905395-001-CZA-1 号
平成 21 年 8 月 18 日

株式会社　佐藤産業プロダクツ　殿

検査結果証明書

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平成 21 年 8 月 10 日付けご依頼の検体について

以下のとおり証明致します。

検体名	ニューテン君
採取年月日	平成 **年**月**日
検体採取者	依頼者
検査目的	水道用器具（給水管等）－浸出性能試験
検査法	JWWA Z 110:2004 付属書 4

検査責任者

検査項目	単位	検査結果	基準値	検査方法
残留塩素の減量	mg/l	1.0	***	計算による
遊離残留塩素（検液）	mg/l	0.1 未満	***	DPD法
遊離残留塩素（空試験液）	mg/l	1.0	***	DPD法
****				

*Neu-Sun kun contains one 171 Core

9 Surface Active Effect

A surfactant increases affinity between oil and water by disintegrating the surface between them (and making oil easier to dissolve in water). It adhers to the mucosa epithelium and cell membrane fatty acids to suppress reattachment of acids to tissue and increase intestinal resistance to impurities. The measurement has indicated that the surface activity level of Quantum Water was 1.7 times higher than that of tap water.

Quantum Water surface activity measurement (^{1}H-NMR)

Drinking water	Amount of salad oil that dissolved in water
Quantum Water	11.61 mmol

Quantum Water ^{17}O-NMR measurement

Drinking water	^{17}O line width
Quantum Water	94Hz

*1.7 times higher surface activity than tap water.

*Measured with a Fourier-transform nuclear magnetic resonance system of Inochinomizu Inc.

10 Increase of Lactic Acid Bacteria

mineral water

Quantum Water

Lactic acid bacteria grew in Quantum Water

Bifidobacterium is the most commonly known bacteria that obtains energy from the reaction in which lactose is broken down and lactic acid is produced. In the lactic acid bacteria growth promotion experiment using mineral water and Quantum Water, growth was observed in Quantum Water.

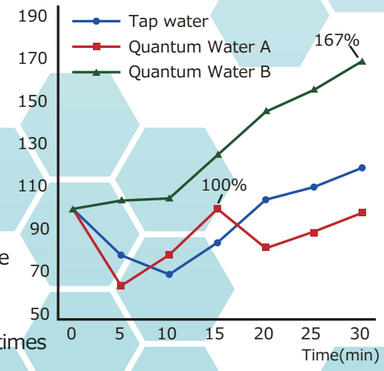
A lactic acid bacteria growth promotion experiment was conducted using raw water and Quantum Water. As a result, various bacteria grew in raw water while lactic acid bacteria grew in water that filtered through the Hexagonal Field Converter.

*Survey by Faculty of Veterinary Immunology, Graduate School of Life and Environmental Sciences, Osaka Prefectural University

11 Changes in Parasympathetic Nerve Activities when Quantum Water was Administered to the Mouse Duodenum

Quantum Water A:
filtered through the Hexagonal Field Converter once

Quantum Water B:
filtered through the Hexagonal Field Converter 10 times



(Katsuya Nagai, Professor Emeritus, Osaka University)

Quantum Water Health Data

12 Effectiveness Quantum Water Obtained through the Hexagonal Field Converter on Mouse Models of Diabetes

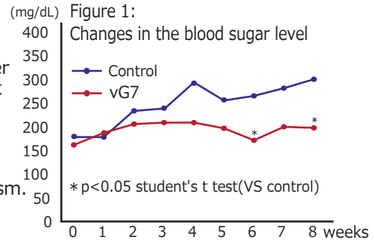
(Takeshi Tadano: Department of Health Care Medical Research, Venture Business Laboratory, Kanazawa University)

It is considered that water becomes activated and is given high energy potential after passing through the Hexagonal Field Converter. This is because magnetism and a weak electromagnetic field cause changes in hydrogen bonds and trigger ionization of some hydrogen. Activated water has sterilization, deodorization, and lactic acid bacteria growth effects and is beginning to play an important role in various fields. Recently, an individual with prediabetes who drank Quantum Water generated with the vG7 unit for a long period of time showed improvement in the blood sugar level indicator, HbA1c. In this present study, mouse models of diabetes were used to examine the effect of Quantum Water on the blood sugar level. More specifically, 23 healthy mice were administered 100 mg/kg of streptozocin (STZ) intravenously to raise their blood sugar level. Then, they were divided into a group of 8 (experimental group) and a group of 15 (control group). The experimental group was provided with Quantum Water while the control group received tap water. Both groups were given a water bottle to which the mice had free access. The blood sugar levels of the two groups were measured weekly for two months. The result indicated that the blood sugar level of the experimental group was significantly lower than the control group after six weeks (experimental group(vG7): 166.1 mg/dL; control group: 292.4 mg/dL)(Figure 1).

Furthermore, the experimental group who had been drinking Quantum Water was administered d-glucose orally. In this glucose tolerance test, the blood sugar level rose 30 minutes later but returned to the pre-administration level after 60minutes. The change was therefore temporary. In the eighth week of the experiment, the two groups had a significant difference in the blood sugar level but not in any other categories (HDL cholesterol, TNF-α, white blood count, red blood count, hemoglobin level, hematocrit level, and blood platelet count).

The results described above suggests that intake of Quantum Water generated with a vG7 unit by individuals may prevent development of type 2 diabetes. In the future, the effectiveness of Quantum Water should be clearly proven by evaluating the insulin secretory ability, insulin metabolism, and insulin receptor sensitivity after Quantum Water intake and monitoring the blood HbA1c level after Quantum Water intake to explore the blood sugar decline mechanism.

Figure 1:
Changes in the blood sugar level



The Japanese Society for Complementary and Alternative Medicine Journal, 13th Edition, Vol. 2, September 2016, pp 71-72

13 Enhanced ATP Activity by Quantum Water

1) Mushroom incubation experiment to compare growth using different types of water
Water is essential for mushroom incubation. When they were incubated using different types of water, their size (diameter and weight) was a < b < c.
*Nanobubble water has capabilities resembling those of Quantum Water and is produced by bubbling enzymes in water.

Golden oyster mushroom	a: ion exchange water		b: nanobubble water		c: Quantum Water
Body weight(mg)	210mg	<	235mg	<	298mg
flora size(cm)	4.9cm		6.4cm		8.4cm

2)ATP synthesis comparison
Expanding the mushroom incubation experiment, ATP synthesis in mitochondria was compared. (It is said that cancer cells die when mitochondria are activated.) *ATP: a substance present across a living organism. It stores energy but releases it when a phosphate is removed. Meanwhile it also repeats a cycle of substance metabolism and synthesis (unit of DNA).

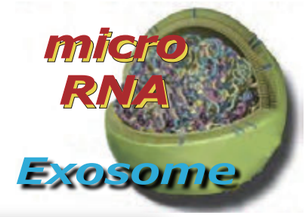
Golden oyster mushroom	a: ion exchange water		b: Quantum Water
Body weight(mg)	205mg	<	360mg
ATP synthesis(RUL)	9.802		52.891

In this experiment, intake of Quantum Water resulted in increased ATP synthesis. This indicates that intake of Quantum Water allows more efficient energy production given that living organisms have the same nutritional state. It also seems to suggest that Quantum Water suppresses an age-induced decrease of energy production and helps living organisms maintain homeostasis.
While nutrition from a diet and its supplements are important, we also believe we must first pay attention to the function of water that influences the foundation of our body mechanism such as breathing and energy synthesis (patented).

14 Effectiveness of Quantum Water on Milk Exosomes

More than **double** the microRNAs that enhance the immune system of **milk**

Latest research result on the use of vG7 Quantum Water (comparison with the control)



Exosomes in breast milk and baby formula boost baby's immune strength!

B: Kishida Farms
Kotoura-cho, Tohaku-gun,
Tottori prefecture

A: Control
Tottori prefectur

Prof. Hidetoshi Tahara, Graduate School of Biomedical and Health Sciences (Pharmaceutical Sciences), Hiroshima University Empirical data in "Analysis of Milk Exosome Characteristics"

15 Measurement of Oxidation-Reduction Potential(ORP) of Chlorine-Free Tap Water Treated with the vG Circulating Water System

Water oxidation is suppressed as ORP becomes negative (reduction) and is promoted as ORP becomes positive. It is believed that more hydrogen is dissolved in water as its ORP becomes negative (lower).

【Examples of water ORP】 *in millivolt (mv)
Tap water: around 450 to around 650 / Electrolyzed hydrogen water: around -350 to around -150 / Highly concentrated hydrogen water: around -600 to around -400

Meanwhile, chlorine-free water treated by the vG circulating water system for three hours remained around 165 to 180. This indicates that, when treated with the vG circulating water system, water has higher reduction potential (ability to suppress oxidation) than regular water.