



## Platinum-Palladium-Containing Soft Drinks (Functional Nutrient Water) Improve COPD and Reduce the Risk of Lung Cancer

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### Abstract

This time, we examined whether platinum-palladium-containing soft drinks (functional nutrient water) contribute to the improvement of COPD. Currently, high fat and high protein are used as nutritional therapy for COPD, but there is often no improvement trend. Therefore, this time, we suggested that COPD was improved by ingesting platinum-palladium-containing soft drinks in addition to conventional nutritional therapy. Since COPD may cause lung cancer in the future, it is necessary to control the exacerbation of COPD. In general, cancer is caused by a large amount of active oxygen produced from lifestyle-related habits, especially bad eating habits. Therefore, in addition to improving nutrition, it is necessary to actively ingest antioxidant nutrients in order to appropriately remove active oxygen, which is said to increase the risk of cancer. Platinum-palladium containing soft drinks was invented by Japanese doctor Hideyo Noguchi. There are four types of active oxygen. Our research group at Tokai University has found that platinum-palladium has the ability to remove all four types of active oxygen. Platinum-palladium was found to be the only substance, as no other substance in the world has been identified that removes this entire reactive oxygen species. The improvement in COPD by taking platinum-palladium-containing soft drinks in addition to general nutritional therapy may reduce the risk of lung cancer.

**Keywords:** COPD; Lung cancer; Platinum-palladium-containing soft drinks; Functional nutrient water; Active oxygen; Antioxidant; AMPK

### Introduction

COPD is an abbreviation for Chronic Obstructive Pulmonary Disease and is a type of chronic respiratory disease. COPD is a disease characterized by shortness of breath by causing destruction and inflammation of the alveoli, as well as coughing and sputum, and irreversible progression. Many COPDs are often derived from smoking, but some can also be caused by environmental impacts [1,2]. Currently, no effective treatment method has been established for COPD, and it is said that there is no choice but to inhale oxygen and maintain/improve QOL in conservative therapy [3]. Epidemiologically, it is said to be the third leading cause of death in the world as predicted by World Health Organization (WHO) by 2030 [4]. Epidemiological studies have also suggested that COPD has a high risk of developing lung cancer [5]. Various treatments such as administration of steroids have been tried for COPD, but this time we report a case in which the symptoms of COPD improved in a patient who took platinum-palladium. In addition, prior to this case, Dr. Taro Shirakawa of Japan reported that when platinum palladium was administered to patients with COPD, improvement tended to occur in approximately 40% to 50% of patients.

### What is platinum and palladium?

Platinum-palladium-containing soft drinks are sold as PAPANAL as soft drinks (functional nutrient water) in Japan. This is a colloidal form of platinum and palladium (A solution of platinum and palladium mixed at a ratio of 1:3), which was invented by Hideyo Noguchi, a Japanese doctor. It is expected to have various effects such as induction of apoptosis of gastric cancer and colorectal

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cancer and activation of NK cells (Both of no submission). Platinum-palladium is completely new functional nutrient water that has never been seen before. Platinum is a chemically extremely stable element and is used for various purposes. In the medical field, the complex is used as an anticancer agent [6]. Other utilization methods focusing on the antioxidant effect of platinum have been reported [7]. Palladium is one of the platinum group elements and is widely used as a material for industrial products [8] and dental treatments [9]. In addition, it has been reported that palladium has the effect of imparting reducing power to platinum involved in the reduction reaction again [10], and attempts have been made to utilize a substance in which platinum and palladium are mixed [11]. Due to the chemical reaction and specificity of both elements, a mixture of platinum and palladium is expected to be useful as a substance having a long-lasting antioxidant capacity as compared with the case of platinum alone [11]. It is also known that platinum-palladium-containing soft drinks moderately remove all four types of active oxygen [12]. As far as the literature is concerned, there is no other substance that re-moves all four types of active oxygen (generally four types of superoxide anion radical, hydroxyl radical, H<sub>2</sub>O<sub>2</sub>, and singlet oxygen [13]). Therefore, this time, we investigated how much AMPK (AMP-activated protein kinase), which is said to be related to the improvement of COPD, is activated by platinum-palladium-containing soft drinks. We also examined whether this would actually improve COPD.

## Materials and Methods

### Examination of AMPK activity with platinum-palladium-containing drinks water

In this experiment, the CycLex<sup>®</sup> AMPK Kinase Assay Kit (MEDICAL & BIOLOGICAL Laboratories Co., Ltd. Tokyo, Japan) was used as per the standard method, and the PBS-added group was used for the AMPK activity in the platinum-palladium--containing drinks added group (final concentration 1%). As a control, a purchased human breast cancer cell line (MCF-7) was used for comparative evaluation. In this kit, in order to measure the current amount of AMPK activity, the activity of AMPK was confirmed 1 h, 12 h, and 24 h after the addition. In addition, the evaluation was performed statistically by the Mann-Whitney U test using statistical processing software (IBM SPSS Statistics Ver.26).

## Results

### Examination of AMPK activity by platinum-palladium

When AMPK activity was measured, Mann-Whitney U test was performed in all groups 1 h, 12 h, and 24 h after the addition and an increase in activity was observed at a significance level of 1% (Table 1 and Figure 1).

**Table 1:** Absorbance of hourly control group and Platinum-Palladium-containing soft drinks added group.

1) Absorbance.

1 hr		12 hr		24 hr	
Cnt	Pt:Pd	Cnt	Pt:Pd	Cnt	Pt:Pd
0.285 ± 0.013	2.308 ± 0.223	0.352 ± 0.019	2.689 ± 0.447	0.264 ± 0.034	2.341 ± 0.082

2) AMPK activity increase rate when Cnt is 100%.

1 hr		12 hr		24 hr	
Cnt	Pt:Pd	Cnt	Pt:Pd	Cnt	Pt:Pd
100%	809.80%	100%	763.92%	100%	886.74%

### Examples of COPD improvement in platinum-palladium-containing soft drinks

Men in their 80 years' old

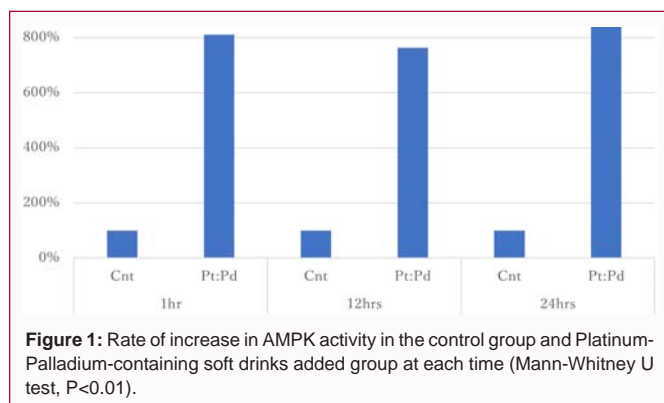
- Height 162 cm, weight 52 kg.
- Smoking history: 15 cigarettes a day, 40 years.
- COPD onset age: 70 years.
- Underlying disease: Emphysema, hypertension
- Current disease: COPD
- Platinum & Palladium intake: 18 ml/day (6 ml/1 vial × 3 vial)
- Duration: 18 months
- Oxygen saturation: SpO<sub>2</sub><90% (mean, 88%) before the start of treatment SpO<sub>2</sub>>98%, decrease of sputum, and better going up and down the stairs after using platinum-palladium-containing soft drinks.

### Course

Before the start of treatment, oxygen was inhaled with almost no movement due to respiratory distress, but after the treatment, rehabilitation, and walking became possible without oxygen inhalation. It is still in good condition. Therefore, it is considered that COPD has been improved.

### Discussion

It was suggested that platinum-palladium-containing soft drinks (functional nutrient water) are an effective treatment method for COPD in this case. COPD is said to have a high risk of developing lung cancer [14]. Therefore, it was suggested that the improvement of COPD in platinum-palladium-containing soft drinks this time may lead to the prevention of lung cancer. Currently, COPD is being treated with a focus on conservative therapy, with the intention of not exacerbating it, but it is difficult to improve it. However, since improvement of SpO<sub>2</sub> was observed in this case, it is possible that lung function may be improved. The mechanism is still unknown, but we considered the possibility. Although COPD is often induced by smoking [2], a large amount of active oxygen may be produced as an effect of smoking [15]. While active oxygen releases inflammatory cytokines and has a good side as a system to protect the body [16], excess active oxygen adversely affects normal cells and causes lifestyle-related diseases, aging, COPD, etc. It is known [17]. Platinum-palladium-containing soft drinks were used in this case, but since platinum-palladium causes moderate antioxidants as described above, it is possible that only unnecessary active oxygen was removed without removing even the necessary active oxygen. It is possible that this led to the improvement of COPD. Heme Oxygenase-1 (HO-1) is



**Figure 1:** Rate of increase in AMPK activity in the control group and Platinum-Palladium-containing soft drinks added group at each time (Mann-Whitney U test,  $P < 0.01$ ).

an enzyme that metabolizes heme to biliverdin/bilirubin (antioxidant effect), carbon monoxide (CO, anti-inflammatory effect/anti-cell death effect), and Fe<sup>2+</sup>/ferritin. It has physiological activities such as protective action and is considered to be related to the maintenance of homeostasis of the living body [18]. HO-1 expression is reduced in patients with COPD [19]. It is possible that a large amount of active oxygen is produced by inflammation of various factors in the lungs, and as a result, the expression of this HO-1 is reduced. It is possible that the removal of active oxygen with platinum-palladium-containing soft drinks normalized the expression of HO-1, that is, the maintenance of homeostasis led to the improvement of COPD. It is considered necessary to study the expression of HO-1 in the future. When the activities of AMPK by platinum-palladium-containing soft drinks were confirmed at the *in vitro* level, AMPK activity was confirmed at a significance level of 1% in all groups. AMPK (AMP-activated protein kinase) is an energy sensor in the body and is a serine/threonine kinase that works to maintain homeostasis of glucose and lipid metabolism [20]. It is said that activation of AMPK regulates energy metabolism and maintains energy homeostasis and is attracting attention as a potential therapeutic effect for metabolic diseases including type 2 Diabetes and cancer [21]. The presence of energy is indispensable for humans to live, and the energy source is ATP (Adenosine Triphosphate), and when ATP is hydrolyzed and converted to ADP (Adenosine Di-Phosphate), Energy is generated [22]. By adjusting this ATP level, AMPK is expected to maintain homeostasis and be effective against metabolic diseases such as cancer, type II diabetes, and obesity [23-25]. In other words, it is considered that the prevention of lifestyle-related diseases including cancer can be expected by increasing the activity of AMPK. It is thought that AMPK regulates metabolism by inhibiting the ATP consumption pathway. It has been reported that AMPK activity reduces abnormal inflammatory response and cell aging, leading to COPD treatment [26], suggesting that platinum-palladium-containing soft drinks may play a part in improving COPD.

## Conclusion

Although the actions of platinum-palladium-containing soft drinks (functional nutrient water) are largely unknown, there are many reports that COPD was actually improved. In the future, by pursuing the test values related to COPD and the action at the *in vitro* level and elucidating the mechanism, it is possible that it will become a COPD therapeutic drug in the future.

## Institutional Review Board Statement

This study was conducted in accordance with the guidelines of the Declaration of Helsinki and was approved by the Hinokosei clinic

Ethics Committee (HKC\_N10012020).

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