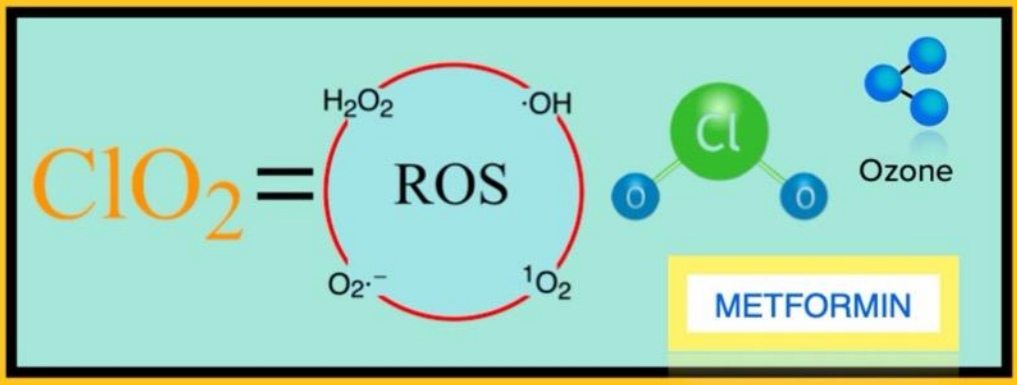

THE CHLORINE DIOXIDE MIRACLE :

Safeguarding Health with Safe and Effective Applications

~~Alopecia Areata~~

~~Hairloss~~

~~Dry Eye Syndrome~~

~~Acne~~

~~Pharyngitis~~

~~Rhinitis~~

~~Skin Care~~

~~Eczema~~

~~Psoriasis~~

~~Vitiligo~~

~~Fat Reduction~~

~~Arthritis~~

~~Cancer(Solid Tumor)~~

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"The Chlorine Dioxide Miracle: Safeguarding Health with Safe and Effective Applications" is a comprehensive guide that explores the potential health benefits of chlorine dioxide and provides valuable insights into its safe usage. This book takes a holistic approach to understanding disease, emphasizing the importance of the balance between functional and non-functional aging cells for overall well-being. It challenges reductionist medical research and advocates for a systems biology approach, encouraging a multi-level analysis to comprehend disease mechanisms more effectively.

Drawing inspiration from the mechanisms of well-established medications like metformin and ozone therapy, which are associated with reactive oxygen species (ROS) and free radicals, this book proposes that chlorine dioxide may simulate the role of ROS in the body for disease treatment.

Through extensive self-experimentation, the author discovers chlorine dioxide's remarkable ability to eliminate abnormal cells, promote tissue

regeneration, and regulate the immune response. These findings form the foundation of the book's principles of disease treatment. The book presents 13 treatment protocols for various conditions, including hair loss, alopecia areata, acne, dry eye syndrome, rhinitis, pharyngitis, eczema, psoriasis, vitiligo, skincare, arthritis, cancer, and localized fat reduction. These protocols leverage the unique mechanisms of action of chlorine dioxide. Additionally, the book suggests considering metformin as an alternative treatment option with similar effects.

The book was completed on December 5, 2023

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PREFACE

In the spring of 2010, I embarked on a mission to find a cure for a friend suffering from bladder cancer. During my research, I came across the writings of Mr. Jim Humble on chlorine dioxide, also known as MMS (Miracle Mineral Solution). His accounts and case studies intrigued me and inspired me to explore the healing potential of this substance.

Approaching my experiments with caution, I followed Mr. Humble's guidance. However, I soon realized that our understanding of MMS and chlorine dioxide was limited. The mechanisms of action and safe application of this substance remained largely unknown. The available information was complex, contradictory, and often misleading, making the correct usage of chlorine dioxide a daunting task.

This realization prompted me to embark on a decade-long journey of intensive research. I delved into scientific literature and conducted numerous experiments to uncover the true therapeutic potential of chlorine dioxide from chemical, biological, and medical perspectives. My laboratory became a hub of innovation, where I tested various formulations and methods, leading to the discovery of new ways to effectively combat different diseases.

Throughout this process, I transitioned from a learner and experimenter to an innovator. I filed several patents related to medical use of chlorine dioxide and authored papers, some of which have been published, while others are currently undergoing the submission process. These achievements not only enhanced the credibility of my research but also established me as a recognized expert in the global community of utilizing chlorine dioxide for disease treatment.

It is important to note that my intention is not to refute Mr. Humble's MMS protocol, but rather to present an updated perspective on the evolution of MMS. I want readers to understand that this book aims to provide a comprehensive understanding of chlorine dioxide and its applications,

ensuring that more people can benefit from this treatment method in a safe and informed manner.

Throughout my journey, I have been driven by a deep commitment and unwavering belief in the remarkable possibilities of chlorine dioxide. My ultimate goal is to spread awareness and understanding of this technology so that more people can experience its benefits and enhance their overall health and well-being. This book serves as a platform to educate and empower individuals to embrace the potential of chlorine dioxide for their own wellness journey. Together, we can unlock the transformative power of this technology and pave the way for a healthier future.

1. UNDERSTANDING CHLORINE DIOXIDE

1.1 THE PROPERTIES OF CHLORINE DIOXIDE

Chlorine dioxide is a compound with unique physical and chemical properties. It appears as a yellow-green gas at room temperature and has a pungent odor similar to that of chlorine. Here are some of its physical characteristics:

- Molecular formula: ClO_2
- Melting point: -59 °C (-74 °F)
- Boiling point: 11 °C (52 °F)
- Density: Approximately 2.4 kg/m³ (in gaseous state at 0 °C and 101.3 kPa)
- Solubility: In water, 3.01 g/L at 25 °C and 34.5 mm Hg.

Chemically, chlorine dioxide is an efficient electron acceptor, allowing it to react with a wide range of organic and inorganic substances. The redox potential of chlorine dioxide in acidic solutions is about +0.95 V, which is less than that of hydrogen peroxide (+1.776 V) and ozone (+2.07 V) under similar conditions. This indicates that chlorine dioxide's oxidizing power is weaker than that of hydrogen peroxide and ozone. The strong oxidizing nature of chlorine dioxide is due to its ability to accept five electrons during redox reactions, as it transitions from a +4 to a -1 oxidation state in chlorine, which is more than most oxidants. Due to its potent oxidizing properties, it can effectively destroy bacteria, viruses, and certain types of parasites, making it particularly useful for disinfection and bleaching.

In industrial applications, chlorine dioxide is primarily used in the following areas:

- Pulp Bleaching: In the paper industry, chlorine dioxide is used to bleach wood pulp to produce high-quality white paper. Compared to chlorine bleaching, chlorine dioxide reduces the formation of harmful chlorinated compounds.
- Water Treatment: Chlorine dioxide is commonly used in drinking water and wastewater treatment because it can disinfect water without forming harmful by-products. It is particularly effective at eliminating odors and tastes in water.
- Industrial Cleaning: Due to its strong oxidizing nature, chlorine dioxide is also used in some industrial and commercial cleaning processes, especially in environments that require disinfection, such as food processing plants and medical facilities.

The medical use of chlorine dioxide is currently mainly limited to topical applications, utilizing its disinfectant properties. Some clinical trials in Japan have applied chlorine dioxide to mucous membranes such as the mouth, again exploiting its disinfectant and germicidal effects.

Chlorine dioxide is a broad-spectrum, efficient, and safe sterilant. Multiple studies have shown that chlorine dioxide can kill various pathogens such as E. coli and Staphylococcus aureus at extremely low concentrations (0.1 ppm). Even in the presence of organic matter, concentrations of several tens of ppm can completely eliminate all microbes, including bacterial vegetative cells, hepatitis viruses, bacteriophages, and bacterial spores. During disinfection, chlorine dioxide undergoes redox reactions without chlorination reactions, unlike other chlorinated disinfectants (such as sodium hypochlorite, trichloroisocyanuric acid, sodium dichloroisocyanurate, etc.), so it doesn't produce carcinogenic substances like chloroform, which are harmful to both the environment and human health.

1.2 THE MEDICAL HISTORY OF CHLORINE DIOXIDE

Chlorine dioxide's initial use against diseases can likely be traced back to Mr. Jim Humble's MMS, who is said to be an aerospace engineer. Miracle Mineral Supplement (MMS), sometimes also referred to as Miracle Mineral Solution, Master Mineral Solution, or the Chlorine dioxide protocol, is a solution containing chlorine dioxide, initiated and promoted by Jim Humble[1]. In 2006, Jim Humble self-published a book titled "The Miracle Mineral Solution of the 21st Century," in which he laid out his theories. He claimed that this solution could cure a variety of diseases, including malaria, HIV/AIDS, hepatitis, herpes, and cancer.

Jim Humble's reasoning was straightforward; he believed that up to 95% of diseases are caused by pathogens that can be killed, and since chlorine dioxide is a recognized disinfectant effective against various pathogens, it could treat these diseases. He stated, "MMS has no nutritional value whatsoever. It is a killer, only. It kills pathogens and oxidizes heavy metal poisons. It does nothing else." Interestingly, if one disregards the accuracy of the premises, the logic could be considered sound. However, he might not be a good biologist or medical expert, merely a chemist. The assertion that "up to 95% of diseases are caused by pathogens that can be killed" is certainly incorrect. Moreover, eliminating a causative agent does not equate to curing the disease; the symptoms affecting health have already manifested, and most disease symptoms are irreversible.

In the medical field, as many diseases still lack a definitive cure, numerous patients have turned to self-treatment. Against this backdrop, the MMS advocated by Jim Humble

[1] https://en.wikipedia.org/wiki/Miracle_Mineral_Supplement

has garnered the attention and trial of millions worldwide. The internet has also facilitated the formation of disease-related communities where members actively share their experiences with the MMS protocol and display notable discontent towards skeptics.

I estimate that in the past nearly two decades, possibly millions have attempted to use chlorine dioxide to treat various diseases. Since chlorine dioxide is not approved as a drug in any country, using it as a treatment almost certainly constitutes a challenge to local drug regulatory authorities. The official stance is that chlorine dioxide is an industrial bleach, and MMS has been mistakenly promoted as a cure for diseases, including HIV, cancer, and the common cold. It is produced by mixing a sodium chlorite solution with an acid (such as the juice of citrus fruits or vinegar). This generates chlorine dioxide, a toxic chemical that can cause nausea, vomiting, diarrhea, and life-threatening low blood pressure due to dehydration.

Authorities worldwide have taken action against it, notably in July 2010, when the U.S. Food and Drug Administration (FDA) issued a similar notice, warning that MMS prepared by mixing a sodium chlorite solution with an acid (such as the juice of citrus fruits) produces chlorine dioxide, "a potent bleach used for stripping textiles and industrial water treatment." The FDA has advised consumers to stop using the product and dispose of it immediately due to reports of severe nausea, vomiting, and dangerous low blood pressure following consumption[2].

Given the FDA's authority, the use and trade of MMS have retreated into the shadows or the gray areas of the internet. Despite this, some individuals ignore the FDA's warnings and continue to promote and sell MMS-like products, facing firm

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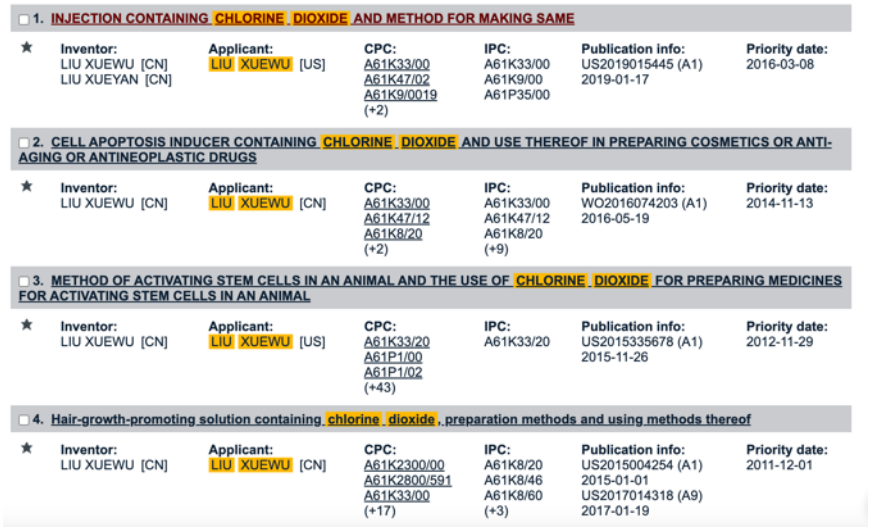
2 https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm220747.htm

official crackdowns. On May 28, 2015, a U.S. federal jury convicted Louis Daniel Smith of conspiracy, smuggling, selling misbranded drugs, and defrauding the United States in connection with the sale of Miracle Mineral Supplement. Evidence presented in court indicated that Smith had set up fake water purification and wastewater treatment businesses to acquire sodium chlorite and distribute MMS without detection by the government. On October 28, 2015, Smith was sentenced to serve 51 months in federal prison, followed by three years of supervised release.

Setting aside the official stance, I've also observed some individuals who, despite questioning Jim Humble's understanding of human biochemistry, remain convinced of MMS's efficacy. For instance, in 2017, a person named Bob published a blog post titled "MMS Jim Humble the Good the Bad the Truth," where he did not oppose MMS but believed

Jim Humble's grasp of human biochemistry to be utterly incorrect[3].



1. INJECTION CONTAINING CHLORINE DIOXIDE AND METHOD FOR MAKING SAME						
★	Inventor: LIU XUEWU [CN] LIU XUEYAN [CN]	Applicant: LIU XUEWU [US]	CPC: A61K33/00 A61K47/02 A61K9/0019 (+2)	IPC: A61K33/00 A61K9/00 A61P35/00	Publication info: US2019015445 (A1) 2019-01-17	Priority date: 2016-03-08
2. CELL APOPTOSIS INDUCER CONTAINING CHLORINE DIOXIDE AND USE THEREOF IN PREPARING COSMETICS OR ANTI-AGING OR ANTINEOPLASTIC DRUGS						
★	Inventor: LIU XUEWU [CN]	Applicant: LIU XUEWU [CN]	CPC: A61K33/00 A61K47/12 A61K8/20 (+2)	IPC: A61K33/00 A61K47/12 A61K8/20 (+9)	Publication info: WO2016074203 (A1) 2016-05-19	Priority date: 2014-11-13
3. METHOD OF ACTIVATING STEM CELLS IN AN ANIMAL AND THE USE OF CHLORINE DIOXIDE FOR PREPARING MEDICINES FOR ACTIVATING STEM CELLS IN AN ANIMAL						
★	Inventor: LIU XUEWU [CN]	Applicant: LIU XUEWU [US]	CPC: A61K33/20 A61P1/00 A61P1/02 (+43)	IPC: A61K33/20	Publication info: US2015335678 (A1) 2015-11-26	Priority date: 2012-11-29
4. Hair-growth-promoting solution containing chlorine dioxide, preparation methods and using methods thereof						
★	Inventor: LIU XUEWU [CN]	Applicant: LIU XUEWU [CN]	CPC: A61K2300/00 A61K2800/591 A61K33/00 (+17)	IPC: A61K8/20 A61K8/46 A61K8/60 (+3)	Publication info: US2015004254 (A1) 2015-01-01 US2017014318 (A9) 2017-01-19	Priority date: 2011-12-01

Figure 1. The author has filed four patents.

Following my introduction to MMS, I embarked on a journey of self-experimentation to refine the protocol for using chlorine dioxide. By integrating commercial strategies, I have applied the correct protocol of chlorine dioxide on thousands of individuals to ascertain the definitive proper usage. I believe my creative efforts deserve protection and recognition of my priority. Consequently, since 2011, I have filed multiple patent applications related to the therapeutic uses of chlorine dioxide (Figure 1).

The patents cover a wide array of diseases, expanding the application of chlorine dioxide beyond the scope of the MMS protocol to include conditions such as hair loss, various autoimmune skin diseases (like eczema, psoriasis, alopecia

3 https://www.earthclinic.com/supplements/mms-editors-choice.html

areata, vitiligo, and neurodermatitis), autoimmune disorders, tissue regeneration diseases, age-related diseases, and cancer.

Despite the broad range, the use of chlorine dioxide for each disease is backed by a rational scientific mechanism. In the remainder of this book, I will detail these scientific underpinnings.

1.3 THE ROLE OF CHLORINE DIOXIDE IN THE BODY

As we consider the incredible potential of chlorine dioxide in treating a variety of diseases, it's important to acknowledge its potential universal and critical role within the human body, particularly in the process of disease recovery. On the other hand, as an oxidant, chlorine dioxide inevitably reminds those with medical knowledge of hydrogen peroxide. Hydrogen peroxide is a member of reactive oxygen species (ROS) in the body. While ROS are not exactly the same as free radicals, they play significant roles, including acting as vital signaling molecules and components of the immune system. Therefore, we can speculate that chlorine dioxide may function similarly to ROS in the body, regulating or treating diseases through a mechanism widely recognized by the academic community.

Let's take a closer look at ROS:

ROS are a group of energetic oxidants, including free radicals like superoxide anion ($O2•^-$), hydrogen peroxide (H_2O_2), and hydroxyl radical (•OH), as well as some non-radical forms of oxidants. Within organisms, ROS serve complex roles, offering both positive biological functions and potential damaging effects.

Positive Functions:

(1) Cell Signaling: ROS are involved in intracellular signaling pathways that regulate cell proliferation,

differentiation, and death. For instance, they play a role in modulating cells 'responses to growth factors.

(2) Defense Mechanisms: ROS play a vital role in the immune system, where white blood cells produce ROS to kill invading pathogens.

(3) Biosynthesis: ROS are involved in certain biosynthetic processes, such as cross-linking connective tissue proteins.

Potential Damaging Effects:

(1) Oxidative Stress: When the production of ROS exceeds a cell's antioxidant capacity, it leads to oxidative stress, which can damage cellular structures, including lipids, proteins, and DNA.

(2) Chronic Diseases: Oxidative stress is associated with the development of various chronic diseases, such as heart disease, diabetes, tumors, and neurodegenerative diseases.

(3) Accelerated Aging: The accumulation of ROS is considered one of the factors contributing to the accelerated aging process.

Balance and Regulation:

Organisms have a series of antioxidant mechanisms to balance the production of ROS, including enzymatic antioxidants like superoxide dismutase (SOD), glutathione peroxidase (GPx), and non-enzymatic antioxidants such as vitamins C and E. These antioxidants help neutralize excess ROS and protect cells from damage.

The significance of ROS in disease treatment is multifaceted:

(1) ROS supplementation can aid in tissue regeneration.

(2) Increased ROS levels can help eliminate cancer cells and are less prone to resistance.

(3) Managing ROS levels can control immune responses and a rise in ROS can reduce inflammation.

These functions are potentially crucial for treating various diseases, and there is extensive research evidence available in medical journals to support these claims.

Chlorine dioxide, having similar properties to ROS, could theoretically have comparable benefits. It might positively impact the treatment of hair loss, autoimmune skin conditions like eczema and psoriasis, autoimmune diseases, disorders of tissue regeneration, age-related diseases, and cancer. My experimental data also supports chlorine dioxide's therapeutic potential in these areas, showing it can encourage tissue regeneration, modulate immune responses, and assist in treating cancer and aging-related diseases. Different from the typical oral intake of MMS, I suggest a treatment method involving direct application of chlorine dioxide to the diseased site, applicable to any affected body part.

In discussing chlorine dioxide's role, we can refer to ROS research. The benefit of this comparison is that a thorough understanding of ROS lays a solid theoretical groundwork for examining chlorine dioxide's treatment mechanisms. The academic world has amassed considerable evidence on ROS's role in treating diseases, providing useful context for grasping how chlorine dioxide works in disease treatment, thereby making the book's content more accessible and believable to readers.

2. THE MODEL OF LIFE: A FRESH PERSPECTIVE ON UNDERSTANDING DISEASE

2.1 THE MODEL OF LIFE

According to Schrödinger, life resists the entropy increase dictated by the second law of thermodynamics by absorbing energy to maintain or decrease its entropy, a concept he referred to as negative entropy. However, negative entropy is a broad concept and doesn't concretely describe the entire life process. Assuming that an organism is entirely composed of cells, entropy measures the organism's orderliness. An increase in entropy represents a transition from order to disorder within the organism, so the overall order of cells reflects the organism's orderliness. When dysfunctional cells emerge, such as senescent or cancerous cells, the organism's order is disrupted, decreasing its orderliness. Let's assume these poorly performing cells, or those causing the loss of order, are collectively known as aging cells (including all types of dysfunctional and malignantly proliferating cells, with their main side effects being spatial occupation and disruption of order). The proportion of aging cells to the total cell count reflects the degree of disorder within the organism. This ratio is intuitive, making it a convenient measure of entropy increase.

We can create a model of life: **the human body has approximately 50×1012 cells. When the proportion of dysfunctional aging cells (senescent cells) reaches a certain level, the person's systemic functions will fail, leading to death. In this model, a local excess of**

dysfunctional cells beyond a threshold equates to the onset of a disease. The body's natural functions, especially the immune system, work to slow down or reduce the accumulation of aging cells (Figure 2)**.**

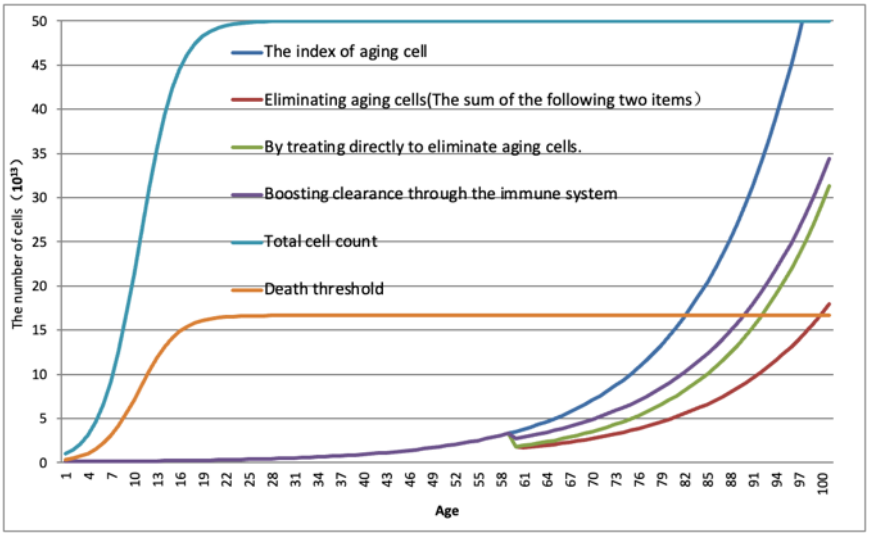


Figure 2. Selective removal of aging cells can continuously reduce the aging cell index, which is expressed as the proportion of aging cells to the total cell count. Eliminating aging cells includes direct removal through medical means and clearance through immune enhancement. Here, aging cells (or senescent cells) can represent dysfunctional cells or cancer cells.

From birth, due to environmental or systemic influences, our body's cells endure various damages. Once a certain threshold is reached, cells age and are cleared by the immune system. However, this clearance is incomplete. We use the immune system's ability to clear cancer cells as a model for its capacity to clear aging cells. This capacity diminishes over time (according to the immunoediting hypothesis, cancer cells ultimately evade the immune system because its clearance ability decreases with time). This is an important variable as it not only reflects how aging affects the immune system but

also how artificially altering the immune system can have long-term effects on the body's ability to clear aging cells. Cells in the body have a lifespan; they don't become senescent at a fixed point but accumulate damage over time, leading to senescence. This damage is likely to affect all cells, not just a subset. Therefore, as time progresses, the number of senescent cells increases at an accelerating rate.

In the animal kingdom, there's a pattern: the heavier (or larger) an adult animal is, the longer its maximum lifespan tends to be. The size of an adult animal can explain 63% of its maximum lifespan. Assuming that an animal dies when a certain proportion of its cells become senescent, and given that all animals have the same rate of cellular damage, immune capacity, and rate of decline in immune function, then an animal's lifespan would be solely related to its size.

Our model easily explains why larger animals live longer: larger animals have more total cells as adults, so they require more senescent cells to cause death. Since the number of senescent cells that accumulate without being cleared due to damage is related only to time, the larger the animal, the longer it takes to reach the critical proportion of senescent cells, and thus, the longer the animal's lifespan.

2.2 TREATMENT OR PREVENTION OF DISEASES

According to physical laws, when an animal becomes ill, it indicates that some of its cells are no longer functioning properly. The approach to treating diseases involves either repairing these dysfunctional cells or removing and replacing them with new ones. For example, in humans, when disease occurs, such as cells becoming inactive (losing function) or deteriorating (harming the body), these cells are considered senescent in our model. So, how do we treat these diseases? Physical laws suggest that we can only clear these damaged

cells (since repairing a bad cell to a good one is almost impossible for humans), and then rely on the body's own mechanisms, using remaining stem cells to regenerate normal cells to replace the ones that have been removed. Our model does not reflect the process of stem cell regeneration; we simply assume that this process will automatically occur after the bad cells are cleared. Since stem cells regenerate younger and healthier cells, if stem cell regeneration can occur naturally without other limitations, then according to our model, once the senescent cells are cleared, everything else happens naturally. Here, we assume this process occurs naturally.

Let's assume a chronic disease occurs, such as diabetes, cancer, or Alzheimer's disease, where the patient's senescent cell accumulation grows exponentially. Without treatment, the patient is likely to die earlier than a healthy individual. If we apply an effective treatment, the result is reflected in the backward shift of the age cell accumulation curve.

According to our model, there are two types of treatments: 1) directly clearing senescent cells, and 2) enhancing immune capacity, which by being improved, increases the clearance of senescent cells. Either way, an effective treatment will result in the senescent cell accumulation curve shifting backward, thus moving the intersection with the death line further back, which equates to an extension of the patient's lifespan. Many treatments can both directly clear senescent cells and boost immune capacity. For example, clearing senescent cells may present antigens to the immune system, bringing additional immune capacity to clear more senescent cells, thus pushing the senescent cell curve even further back, and extending lifespan even more.

In reality, ablation of tumors can increase patient survival; clearing senescent cells can extend animal lifespan. These real-world cases align with our model.

Unlike lethal cancers, the treatment of diabetes is more about prevention or reducing damage, since diabetes

treatment does not seem to involve clearing senescent cells. Instead, it often involves lowering blood sugar to limit further damage from high blood sugar to the body's systems, which may relate to the chronic nature of diabetes and the fact that there is no known cure for diabetes yet.

2.3 TOXIC EXCITATORY EFFECT

Some treatment methods display a peculiar pattern where substances generally toxic to the human body, when administered in low doses, can benefit the elimination of diseases or cause an excitatory effect that is advantageous to the body.

For instance, it was commonly believed that free radicals (or ROS) inducing oxidative stress would damage normal cells, leading to cell loss or even cancer (akin to age cells in our model). However, it has been found that the body's production of ROS is generally beneficial. Exercise, for example, generates ROS, but its benefits for diabetes and cancer are unquestionable. Increasing ROS can treat autoimmune diseases like arthritis. If the free radical harm theory held, people would need to take antioxidants daily to combat this damage. Yet, the observed toxic excitatory effects challenge this view.

Our model can easily explain this. We assess a treatment method by whether it increases or decreases the number of senescent cells. If the number grows, the treatment is deemed harmful; if it shrinks, the treatment is considered beneficial. Free radicals increase oxidative stress on normal cells, but since this damage accumulates gradually, there should be no dramatic fluctuations. Temporarily lowering free radical levels has a minimal impact. This perspective upholds the free radical damage theory. However, our model includes the function of immune clearance capacity. We know that ROS are crucial for the immune system, with neutrophils and macrophages clearing various senescent cells (like infected or

cancerous cells) by elevating ROS levels to leverage their oxidative power. Clearly, while higher ROS levels may damage normal cells, they also enhance the immune system's ability to clear senescent cells. When ROS levels are temporarily elevated after exercise, for example, it aids the immune system in clearing senescent cells, thus generally benefiting health.

Therefore, the toxic excitatory effect of free radicals relies on the short-term increase in ROS, which boosts the immune system's capacity to clear more senescent cells than the number of new senescent cells caused by free radical damage to normal cells.

2.4 THE LIFE MODEL AND CHLORINE DIOXIDE

In our pursuit of treating diseases, we have positioned extending survival as our ultimate goal. Within this framework, the preferred method of treatment for various diseases involves eliminating damaged cells and bolstering the immune system to enhance its clearing capability. For chronic diseases that lack effective treatments, our suboptimal strategy is to prevent further deterioration or minimize damage to other healthy cells.

ROS are known not only for their ability to clear damaged cells but also for their potential to boost immunity. Could chlorine dioxide have a similar effect? If we compare the human body to a complex machine, a disease is like a faulty component. Common sense dictates that a skilled mechanic would remove the damaged part and replace it. In this analogy, removing the bad part equates to clearing damaged cells, and the machine's automatic replacement with new parts mirrors our body's ability to regenerate healthy cells, provided the right conditions.

In our life model, we've developed a logical framework to explore the potential of chlorine dioxide's oxidative properties in clearing damaged cells and to investigate if it could also promote tissue regeneration by simulating ROS.

Due to the rapid pace of redox reactions, effectively using oxidizing agents like chlorine dioxide to clear damaged cells requires ensuring they reach the affected areas directly. Free radicals have long been considered culprits in causing diseases, and chlorine dioxide could similarly harm healthy tissues or cells if misapplied. Until we fully understand whether such damage is reversible, we must exercise extreme caution when using chlorine dioxide to avoid contact with normal tissues or cells. This significantly raises the technical barrier for its medical application.

Fortunately, recent research has started to challenge the view that free radicals are entirely harmful. In particular, blindly following antioxidant regimens may not be beneficial to the human body and could even accelerate the progression of certain diseases. These findings provide a new perspective on the potential medical applications of chlorine dioxide. Numerous studies have found that supplementing ROS can aid in tissue regeneration, and my research also indicates that chlorine dioxide can promote this process.

In our life model, eliminating senescent cells is central to curing diseases. We previously assumed that once these cells were cleared, the body's natural healing abilities would take over, stimulating the renewal of young cells and tissues. However, this assumption is not always solid because human regenerative capabilities are inherently limited, which is a significant bottleneck in our fight against diseases.

Against this backdrop, chlorine dioxide reveals its unique appeal. Besides its ability to clear senescent cells, it may also cause transient damage to healthy tissues. Yet, it is this damage that triggers a regenerative response in tissues, and this property of chlorine dioxide could be pivotal. It not only helps to fill the voids created by the removal of senescent cells

but also promotes regeneration, aiding in the complete recovery of these damages. This dual effect offers us a fresh perspective to understand and harness the potential of chlorine dioxide in medical treatments, opening a new window for us.

In the MMS protocol, Jim Humble recommends methods of administration that include oral ingestion and topical application, with chlorine dioxide concentrations far below 3mg/mL (the saturation concentration at room temperature). Here, I must clarify that oral ingestion and low-concentration topical application are utterly ineffective in utilizing chlorine dioxide's properties. Due to its rapid oxidative reaction, which completes within seconds upon contact with human cells, orally ingested chlorine dioxide almost certainly cannot reach areas beyond the mouth and esophagus. Moreover, oral administration of a highly concentrated solution of chlorine dioxide is hazardous, as it can cause severe corrosion of the esophagus and indiscriminately damage various types of cells.

Regarding low-concentration chlorine dioxide for topical use, such concentrations are almost ineffective in clearing diseased tissues and cells.

2.5 THE UPDATED DISEASE RESEARCH MODEL

My life model falls under the category of systems biology and is part of complex science; it is a complex adaptive system. Current medical research exhibits a reductionist trend, emphasizing understanding life processes and pathological states by studying the most fundamental building blocks of organisms—molecules. This approach has its advantages, such as helping scientists uncover the molecular mechanisms of diseases and discovering new drug targets. However, reductionism has a fatal flaw:

(1) Neglecting Complexity: Biological systems are highly complex and dynamic, and changes in a single molecule may

not suffice to explain changes in the entire system. Diseases are often the result of multiple factors interacting, and reductionism might overlook this system-level complexity.

(2) Overlooking Environmental Factors: The onset of diseases is related not only to individual molecular and genetic factors but is also influenced by a variety of factors such as environment, lifestyle, and psychological state. An excessive focus on the molecular level might neglect these important environmental and social factors.

(3) Limitations of Disease Models: Studying diseases at the molecular level often requires the establishment of simplified models, such as cell cultures or animal models. These models may not fully replicate the complexity of human diseases, thus limiting the applicability of research findings.

(4) Individual Differences in Treatment: Even with the same molecular targets, different individuals may respond differently to treatments. Reductionism may not adequately explain these differences between individuals.

While molecular research has significantly advanced medicine, the field is increasingly adopting a systems biology approach. This method integrates information across different levels—from molecules to cells, tissues, organs, and the entire organism—and factors in genetics, environment, and lifestyle for a more comprehensive understanding of disease. However, current systems biology theories often follow a reductionist path, attempting to exhaustively map relationships between variables at all levels. This seems unattainable. Aiming for a simple, elegant theory of life's essence, like Schrödinger's concept of negative entropy, is a more suitable goal for systems biology than constructing a complex model with all variables.

Upon analyzing the drug development process, it's evident that aside from serendipitous discoveries, most new drugs originate from in-depth molecular studies, seemingly validating reductionism. Yet, when examining the effectiveness of current medical treatments, the number of

curable diseases is disappointingly small compared to the vast array of human diseases. This suggests the need for new research approaches.

Similar to how mathematical modeling in complex sciences often omits certain details to highlight key variables, systems biology research should also discard variables that cancel each other out or are too complex to decipher. I propose a new method for systems biology research: **stratifying complex systems and establishing clear boundaries between levels.** We should focus on levels where human intervention can achieve specific goals. If a level's variables are too numerous, the structure too complex, beyond our research and computational capabilities, or if comprehensive intervention is unfeasible, the research focus should shift to a higher level. For instance, if genomic research is too intricate, we might move to the proteomic level, and if that's still unmanageable, we proceed to the cellular level. At the cellular level, we consider the average effects of genes and proteins instead of their specific variables.

I firmly believe that my exploration and development of the therapeutic potential of chlorine dioxide is rooted in this innovative research philosophy. Initially, in my study of chlorine dioxide, I focused on its effects at the cellular level, disregarding whether it damages the cell membrane or DNA. Additionally, I observed similarities between chlorine dioxide and certain substances in the body's adaptive system. By simply mimicking ROS in experimental simulations, I found that chlorine dioxide exhibits a triple effect, including the elimination of abnormal cells, promotion of tissue regeneration, and modulation of immune responses. Considering the fundamental chemical properties of chlorine dioxide, I believe it is essential to deliver it directly to the affected areas as a core principle in disease treatment.

While I am convinced of the broad therapeutic effects of chlorine dioxide, I am also aware of the need to adhere to current medical regulations. I am committed to following the

standard process for new drug development to advance it to clinical trials. I understand that many readers may be disillusioned with existing medical technologies. If you are confident in the therapeutic effects of chlorine dioxide but are unable to use it due to legal constraints, I suggest considering metformin as an alternative.

I suggest considering metformin for several reasons:

Firstly, numerous studies and clinical practices have shown that metformin has the potential to eliminate abnormal cells, promote tissue regeneration, and regulate immune responses. This may be achieved through its ability to generate ROS at the cellular level, similar to the mechanism of chlorine dioxide.

Secondly, the off-label use of metformin for non-diabetic treatment is legally permissible and does not pose any significant risks.

Thirdly, metformin is generally well-tolerated, with occasional diarrhea being the most common side effect.

Additionally, metformin has been found to have various beneficial effects, including weight loss, anti-aging properties, anti-cancer activity, and anti-inflammatory effects. These serendipitous discoveries parallel the potential benefits of chlorine dioxide. Unlike some existing drugs, such as targeted cancer therapies that can lead to drug resistance, metformin can be taken on a long-term basis.

Lastly, metformin is a cost-effective treatment option.

3. FREE RADICALS, OZONE, AND CHLORINE DIOXIDE

3.1 FREE RADICALS AND ANTIOXIDANT THERAPY

Free radicals are molecules or atoms that possess unpaired electrons, making them highly reactive and capable of engaging in chemical reactions with other molecules or atoms. The formation of free radicals typically occurs when a chemical bond within a molecule is broken, resulting in one electron becoming isolated while the other electron remains in the original molecule. This presence of unpaired electrons gives free radicals their strong chemical activity.

Free radicals can be oxygen free radicals (such as superoxide anion and nitric oxide) or non-oxygen free radicals (such as hydroxyl and nitro radicals). They are widely present in nature, including within organisms and the environment. They can be generated through natural metabolism, radiation, pollutants, and other means.

In most cases, the terms "free radicals" and "ROS" can be used interchangeably. While this is generally correct in many instances, it is not always the case. There is a close relationship between free radicals and ROS, but they are not entirely identical. ROS refers to a class of highly reactive oxidizing species, which includes some free radicals. In addition to free radicals, ROS also encompasses other positively charged oxidizing species, such as hydrogen peroxide (H_2O_2). Furthermore, there are some nitrogen oxides that may be considered free radicals but are not classified as ROS.

Free radicals were first described over a century ago by Moses Gomberg. Due to their high reactivity and short lifespan, it was believed for a long time that free radicals did not exist in biological systems. However, more than 30 years later, Leonor Michaelis proposed a hypothesis that all oxidative reactions involving organic molecules are mediated by free radicals. While this hypothesis was overall incorrect, it sparked interest in the role of free radicals in biological processes. In 1950, the presence of free radicals in biological systems was discovered and immediately associated with various pathological processes and aging. Since then, we have gained a deeper understanding of the role of free radicals in life processes.

For a long time, and even until now, free radicals have primarily been considered harmful and viewed as destructive substances. However, the discovery by McCord and Fridovich changed this perspective when they described the first protective enzyme against free radicals, known as superoxide dismutase. During the period from 1970 to 1990, the notion of free radicals as the sole harmful substances in biological systems faced several important challenges. Firstly, free radicals were found to be involved in the immune system's response to infectious agents. The second significant discovery was made in 1980 when it was found that endothelial cells can produce nitric oxide from L-arginine, explaining the biological activity of endothelium-derived relaxing factor (EDRF). This finding opened the door for the investigation of the second direction of free radicals, namely their signaling function, initially focused on nitric oxide and later extended to other reactive species. Lastly, it was discovered that the levels of free radicals are regulated by hormones such as insulin and are considered regulators of core metabolic pathways. Therefore, it is now clear that free radicals are active participants in various biological processes, no longer seen solely as destructive substances but rather as genuine contributors to many normal functions within an organism.

Antioxidant therapy is a treatment method used to suppress free radicals and reduce oxidative stress. Antioxidants are substances that can neutralize free radicals and reduce oxidative stress by donating electrons or hydrogen atoms to stabilize the free radicals, thereby reducing their damage to cells and tissues.

Antioxidants are commonly found in various health supplements, and some well-known antioxidants include vitamin C, vitamin E, beta-carotene, and selenium. These antioxidants can be obtained through dietary intake or supplements. Additionally, certain plant extracts and herbs are also believed to have antioxidant activity, such as green tea, grape seed extract, and curcumin.

The free radical theory and antioxidant therapy are two sides of the same coin. The research results on antioxidant therapy have been inconsistent, mainly due to variations in the mechanisms of action and effects of antioxidants among different diseases and individuals. However, some studies suggest that moderate intake of antioxidants can provide protective effects and reduce the risk of diseases related to oxidative stress.

Moderate intake of antioxidants may help neutralize free radicals and reduce the damage caused by oxidative stress to cells and tissues. Since oxidative stress is a long-term natural environmental process, long-term moderate intake of antioxidants may provide protection and reduce the risk of diseases such as cardiovascular diseases, cancer, and neurodegenerative diseases.

However, excessive intake of antioxidants may have negative effects on health and even increase the risk of certain diseases. Some studies indicate that high doses of antioxidants may disrupt the normal balance of oxidation and reduction, inhibiting the normal functions of free radicals in cells. Moreover, excessive intake of antioxidants may interfere with cell signaling and gene expression, adversely affecting normal cellular functions.

It is important to note that, according to the life model discussed in the previous chapter, abnormal cells in the body rely on oxidative stress being continuously cleared. If this clearance function is neutralized by antioxidant therapy, it may lead to a cascade of aging-related diseases. Therefore, in my opinion, antioxidant therapy is of no use.

3.2 EXPLORING CHLORINE DIOXIDE'S POTENTIAL THROUGH OZONE'S CLINICAL USE

Ozone is a molecule composed of three oxygen atoms, with a chemical formula of O_3. It is a colorless gas with a strong, pungent odor at room temperature. Ozone is an important component of the Earth's atmosphere, primarily found in the ozone layer, where it filters ultraviolet radiation and protects the Earth's biosphere.

At ground level, ozone is a harmful gas and a major component of air pollution. It is generated by industrial emissions, vehicle exhaust, and chemical reactions. High concentrations of ozone can be detrimental to human health, causing respiratory irritation, coughing, asthma, and eye discomfort.

However, in the field of medicine, ozone is widely used in ozone therapy and ozone disinfection. Ozone therapy is a treatment method that involves the application of ozone gas to the patient's body, either internally or externally, to promote healing and treat diseases. Ozone disinfection utilizes the strong oxidative and antimicrobial properties of ozone to eliminate bacteria, viruses, and fungi, and is used for disinfecting medical equipment and environments.

Ozone therapy is a treatment method that involves the application of ozone gas to the patient's body, either internally or externally, to treat diseases. It can be administered through

various routes, such as ozone inhalation therapy, local ozone therapy, and systemic ozone therapy.

Ozone inhalation therapy involves delivering a mixture of ozone gas and oxygen into the patient's lungs through a respirator. This therapy is used to treat respiratory system diseases such as chronic obstructive pulmonary disease, asthma, and bronchitis. The antibacterial and anti-inflammatory properties of ozone can help alleviate inflammation and improve respiratory function.

Local ozone therapy involves directly applying ozone gas to the patient's skin surface or wounds. This therapy is commonly used to treat chronic wounds, skin infections, and burns. The oxidative and antimicrobial properties of ozone can promote wound healing and inhibit infections.

Systemic ozone therapy involves mixing ozone gas with the patient's blood and then reinfusing it back into the body. This therapy is used to treat cardiovascular diseases, immune system disorders, and chronic pain. The anti-inflammatory properties of ozone can improve blood circulation, enhance immune function, and alleviate pain.

It is clear that supplementing the body with external ozone, which acts similarly to delivering free radicals or ROS, challenges the widely accepted theory of harmful free radicals and antioxidant therapy. Despite ozone's high oxidation potential of +2.07V, indicating a free radical-like behavior, it has been approved for clinical use in several countries. In contrast, chlorine dioxide (with an oxidation potential of around +1V), which shares similarities with ozone or ROS, has not received approval for clinical use anywhere. One possible reason for this discrepancy is that chlorine dioxide is easier to produce and can be used by the general public without specialized equipment or professional supervision. As a result, the pharmaceutical industry may lack the motivation to conduct clinical trials for chlorine dioxide, as it presents challenges in generating commercial revenue.

Furthermore, it's important to note that chlorine dioxide, like ozone, has the ability to eliminate abnormal cells, reduce inflammation, and effectively treat various diseases. This similarity suggests that chlorine dioxide has significant medical potential and should undergo rigorous clinical trials to establish its safety and efficacy. In the upcoming chapters, I will provide compelling evidence of its medical benefits through extensive self-experimentation. In addition, I will share valuable information with readers on how to safely utilize the therapeutic properties of chlorine dioxide to safeguard our health.

4. THE MAGICAL MECHANISM OF CHLORINE DIOXIDE

When exploring the complex mechanisms of ROS within the human body, it is impossible not to mention the widely studied drug metformin. Research indicates that the benefits of metformin extend well beyond the traditional treatment of type 2 diabetes, with potential in areas such as weight loss, cancer prevention, anti-aging, anti-inflammatory effects (for treating autoimmune diseases), and even antiviral responses. Although there is some controversy in the findings, some reports suggest that metformin may increase ROS levels in the body (contrary to the numerous studies that suggest metformin helps reduce ROS, thereby reducing oxidative stress damage. I firmly disagree with this point; oxidative stress is a long-term result, and many reports have reached a consensus by treating the free radical damage theory as evidence).

Considering the potential anti-cancer effects of increased ROS levels (which can trigger systemic anti-tumor immune responses) and the role in promoting tissue regeneration, we can hypothesize that the mechanism by which metformin treats various diseases may involve using ROS to clear damaged cells (contributing to anti-aging and anti-cancer effects), promote tissue regeneration, and modulate immune responses (anti-inflammatory).

Further speculation suggests that directly supplementing chlorine dioxide at the site of lesions (mimicking exogenous ROS supply) may play three key roles: first, it may indiscriminately clear abnormal cells, including senescent and cancerous cells, and may also affect some normal cells; second, it may promote the regeneration of damaged tissues; and last, it may regulate the immune system, restoring

immune balance. Below, I will detail how I have proven these three magical mechanisms of chlorine dioxide through experimentation.

4.1 THE NON-SELECTIVE CELL ELIMINATION MECHANISM OF CHLORINE DIOXIDE

As a potent oxidizing agent, chlorine dioxide at certain concentrations can easily kill a wide range of viruses, bacteria, and even larger parasites. Therefore, when delivered to any part of the body, it can also readily kill various cells, implying that chlorine dioxide can eliminate cells indiscriminately.

To verify this mechanism, I conducted experiments on the cytotoxic effects of chlorine dioxide on cancer cells in vitro: if the concentration of chlorine dioxide reaches 1mg/mL, it can kill all cancer cells in a culture dish (including two types of normal cells) (Figure 3).

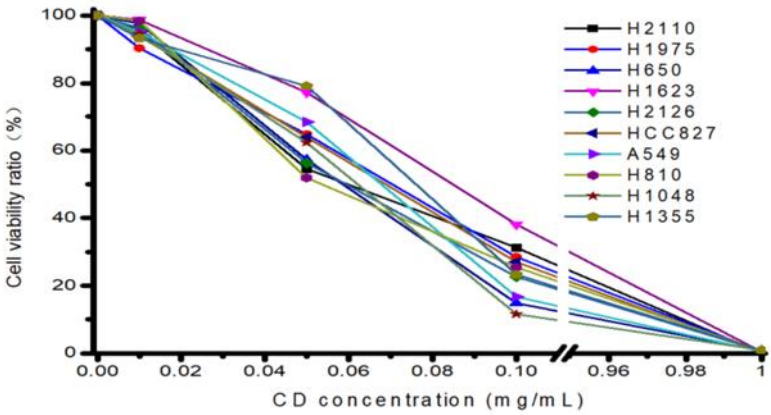


Figure 3. Chlorine Dioxide's In Vitro Experiments on Cancer Cell Destruction

Additionally, I administered subcutaneous injections of chlorine dioxide at concentrations of 7.5mg/mL and 15mg/mL into the backs of mice. This resulted in a distinct area of damage around the injection site, where the chlorine dioxide completely destroyed the hair follicles, leading to total hair loss in the affected area. Despite the severe damage, the procedure was overall safe for the mice and did not cause irreversible permanent harm. Thirty-one days after the subcutaneous injection, the damaged area had fully regenerated, and the hair had successfully regrown (Figure 4).

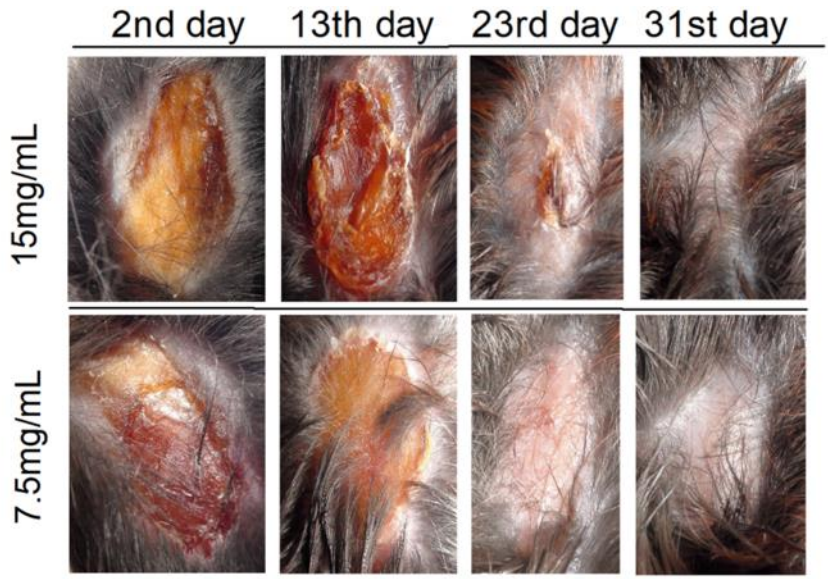


Figure 4. Representative images of the back skin taken on days 2, 13, and 23 after the start of Chlorine dioxide injection. Images selected from each group.

Later, in my experiments using intratumoral injections of chlorine dioxide to treat cancer, I confirmed that intratumoral injection of chlorine dioxide could completely ablate any type of solid tumor.

The non-selective cell elimination mechanism of chlorine dioxide is crucial for treating certain proliferative diseases characterized by dysfunctional cell growth, such as localized senescent diseases (excess senescent cells) and cancer (excess cancer cells). It is akin to a skilled technician removing a faulty part from a machine and replacing it with a functioning one, restoring the machine to operation. Similarly, for localized senescent diseases and cancer, we can deliver chlorine dioxide directly to the affected area. Relying on its strong oxidative action, chlorine dioxide indiscriminately kills the cells it contacts, effectively clearing out the damaged cells. Inevitably, some normal cells will be harmed in the process, but such damage is reversible. After chlorine dioxide clears the cells, the body can fill the physical void left behind with healthy cells.

I emphasize the non-selective nature of chlorine dioxide in cell elimination because this characteristic is critical. Typically, the body can clear some senescent cells on its own, likely through the immune system. However, it usually cannot initiate a normal regenerative process to fill the voids left by these cells. Naturally, these spaces are often occupied by other functional cells in the vicinity. Take androgenetic alopecia, for example; when hair follicles age and fall out, they are usually not replaced by new follicles of the same size but by increasingly smaller ones. The larger space left by the fallen follicles is often invaded by surrounding sebaceous gland cells. Therefore, to treat hair loss, it is necessary to clear the normal sebaceous gland cells that have taken over the space originally belonging to the hair follicles. Hair transplantation is effective precisely because it is based on this logic. Chlorine dioxide lays the groundwork for treating hair loss through its mechanism of non-selectively clearing cells.

In the field of cancer treatment, existing drugs inevitably encounter the problem of drug resistance, rendering even approved drugs ineffective at combating cancer over the long term. This means many patients with advanced cancer find themselves in a situation with no effective treatment options.

The issue of drug resistance primarily stems from the diversity of cancer. Most novel cancer drugs are designed to target specific cancer cell markers or biological pathways, but not all cancer cells consistently exhibit these targets or are affected by these pathways. Hence, drug resistance is a common challenge for current cancer treatments. If there were a drug capable of effectively destroying any type of cancer cell, regardless of how they mutate or exhibit heterogeneity, such a drug could eliminate cancer cells indiscriminately. This would spare cancer patients from the issue of drug resistance, allowing them to continue using the drug indefinitely. Therefore, by directly injecting chlorine dioxide into tumors, we can continuously eliminate cancer cells, potentially turning cancer into a manageable chronic condition.

4.2 THE MECHANISM OF CHLORINE DIOXIDE IN PROMOTING TISSUE REGENERATION

The human body possesses an innate tissue regeneration system that automatically heals wounds with new tissues, provided the injury is not too extensive. Small wounds heal perfectly, with the new tissue comprised entirely of young cells. However, larger wounds or tissue loss may encounter complications such as infection by pathogens, coverage by necrotic tissue, or the proliferation of non-functional cells or connective tissue, making tissue regeneration especially critical in the later stages of disease treatment.

Existing research has demonstrated that the exogenous supplementation of ROS can promote tissue regeneration. We are now using chlorine dioxide to mimic the role of ROS, giving us reason to believe that the direct delivery of chlorine dioxide can enhance tissue regeneration.

In experiments, I treated the tail wounds of mice with chlorine dioxide, hydrogen peroxide (a type of ROS), and

saline. The results showed that chlorine dioxide, like hydrogen peroxide, accelerated wound healing (Figure 5).

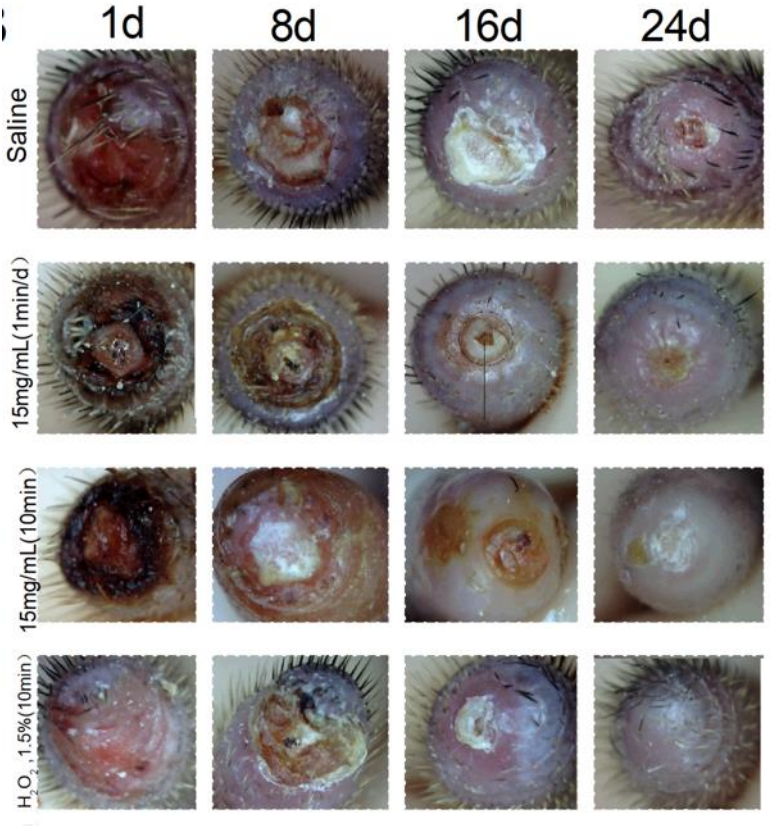


Figure 5. The experiments on the tissue regeneration promoted by chlorine dioxide and hydrogen peroxide.

The potential reasons for chlorine dioxide's promotion of tissue regeneration could be related to the following three aspects:

(1) Chlorine dioxide acts as an antimicrobial agent, protecting the wound from microbial infections.

(2) As an oxidant, chlorine dioxide effectively clears away scabs or proliferating connective tissue at the wound site.

(3) Chlorine dioxide may mimic the role of ROS, modulating the immune system and reducing inflammatory responses, thus facilitating normal tissue regeneration.

The mechanism by which chlorine dioxide promotes tissue regeneration is crucial for treating various diseases. Particularly when chlorine dioxide is delivered directly to the affected area, it can swiftly eliminate cells within and around the target zone. Once the clearance process is complete, it leaves behind spaces that need to be filled with regenerated healthy cells. Thus, chlorine dioxide not only enhances tissue regeneration but also strengthens its cell-clearing action, collectively aiding the recovery process from diseases.

4.3 THE MECHANISM OF IMMUNE RESPONSE REGULATION BY CHLORINE DIOXIDE

Maintaining a balanced immune system is critical. An overly strong immune response can trigger autoimmune diseases, for which effective treatments are currently lacking. Conversely, a weak immune response increases the risk of cancer and other age-related diseases, which also present significant treatment challenges.

Although there is some controversy in the research findings, certain studies suggest that increasing the levels of ROS in the body may help suppress excessive immune responses and reduce inflammation. For instance, metformin can inhibit inflammation by increasing ROS levels, which may alleviate autoimmune diseases. Moreover, conclusive evidence indicates that tumor ablation therapies, such as Photodynamic Therapy (PDT), generate ROS and trigger systemic antitumor immune responses, thereby inhibiting tumor growth in other parts of the body.

These studies indicate that ROS has a bidirectional role in regulating immune responses. Based on this, we can speculate that chlorine dioxide might mimic the function of ROS. When delivered directly to the lesion site, chlorine dioxide could modulate the immune response, suppressing inflammation in inflammatory diseases and eliciting systemic antitumor immune responses in cancer therapy.

Under my guidance, many individuals have tried using chlorine dioxide topically to treat various autoimmune skin diseases, achieving remarkable results. Some have even completely cured various skin issues, including alopecia areata, eczema, psoriasis, and vitiligo. Additionally, in my personal experiments, I have successfully treated my arthritis by injecting a high-concentration chlorine dioxide solution (15mg/mL) directly into the joint cavity ten times. These experiences demonstrate chlorine dioxide's ability to suppress inflammatory responses.

In another study, I treated cancer by injecting chlorine dioxide directly into tumors, which showed that this approach could stimulate a systemic immune response, effectively inhibiting tumors in other parts of the body that were not injected. This further confirms chlorine dioxide's ability to modulate the immune system.

Metformin is hailed as a "wonder drug" mainly because of its multiple therapeutic effects: controlling blood sugar, aiding weight loss, fighting cancer, delaying aging, reducing inflammation, and promoting tissue regeneration. I speculate that these effects are likely related to its ability to increase ROS levels in the body. Chlorine dioxide, which can mimic the function of ROS, might be more effective in treating these diseases when delivered directly to the affected area.

Globally, drug regulation is very strict. Currently, I may be the only one pushing for chlorine dioxide to enter clinical trials as a new drug. Before chlorine dioxide is ultimately approved, we may face significant challenges, and the process could be quite lengthy. For readers of this book, if you wish to

treat diseases beyond the skin surface, you might not be able to try treatment without medical supervision, even if you understand the mechanism of action of chlorine dioxide. I suggest that, in the absence of chlorine dioxide, considering oral metformin as an alternative treatment option could be beneficial.

5. TREATING HAIR LOSS WITH CHLORINE DIOXIDE

It should be noted that this chapter specifically addresses androgenetic alopecia, a condition that will eventually affect 50% of men and 10% of women. Aging is an inevitable process for everyone, and for some, it begins with hair loss. Given that aging is a medical challenge, so too is hair loss.

Androgenetic alopecia accounts for 90% of all cases of hair loss. The fundamental cause of this condition is the cumulative effect of androgens on hair follicles, leading to a disruption in the regenerative process and the inability to produce healthy hair follicles. In essence, androgenetic alopecia is a manifestation of aging.

In China, about 2 in 10 adult men and 1 in 20 adult women experience hair loss, resulting in an estimated 65 million men and 15 million women affected, totaling 80 million individuals. Of these, 50 million have visibly noticeable hair loss. In the United States, approximately 3 in 10 adult men experience some form of hair loss. There are an estimated 40 million men and 12 million women in the United States alone who are dealing with hair loss to some degree. By the age of 35, two-thirds of American men will have experienced the effects of male pattern baldness.

5.1 THE CAUSE OF ANDROGENETIC ALOPECIA

Androgenetic alopecia, also known as male pattern baldness, is a common type of hair loss influenced by genetics and hormones. The main causes of androgenetic alopecia are believed to be:

(1) Hormonal levels: Androgens, particularly dihydrotestosterone (DHT), play a crucial role in androgenetic alopecia. DHT, a derivative of testosterone, causes hair follicles to shrink, shortening the hair growth cycle and eventually leading to follicle atrophy, preventing the production of normal hair.

(2) Age: As individuals age, hormonal levels change, and the risk of developing androgenetic alopecia increases.

(3) Lifestyle and health: Although androgenetic alopecia is primarily caused by genetics and hormones, other factors such as diet, stress, and certain health conditions can also influence the progression of hair loss.

In my opinion, the conversion of androgens to DHT can block the hair follicle regeneration process. Specifically, DHT creates obstacles in the transformation of hair follicle stem cells into follicle cells, disrupting the regeneration process and causing the follicles to shrink until they disappear.

Studies have found that hair follicle stem cells are still present in balding areas, so the loss of these stem cells is not the primary cause of hair loss.

There are two possible ways that DHT can block the hair follicle regeneration process: 1) Similar to how DHT can enlarge the prostate in men, it can also cause the sebaceous glands near the top of the head to enlarge and proliferate, squeezing the living space of the hair follicles and preventing normal hair follicle regeneration; 2) After the hair follicle goes through the cycles of growth, degeneration, and rest, the body should provide appropriate signals to the hair follicle stem cells to initiate the regeneration process. The accumulation of DHT can interfere with or block this signal transmission, thus hindering the differentiation of hair follicle stem cells into follicle cells.

Regardless of the mechanism, the outcome is the same: sebaceous gland cells occupy the space meant for hair follicles. The balding areas not only produce excessive oil but also lose

the physical space necessary for hair follicle regeneration, making the process even more difficult.

5.2 THE ESSENCE OF ANDROGENETIC ALOPECIA

- Androgenetic alopecia is a manifestation of aging, and generally, the severity of hair loss increases with age. Men with longer lifespans rarely experience premature hair loss; this type of hair loss is akin to common age-related skin phenomena like wrinkles and is not considered a disease. It affects appearance but has little to no impact on health.
- The only discomfort for patients, aside from the aesthetic impact, is an excess secretion of scalp oil due to sebaceous cells invading the space once occupied by now-lost hair follicles.
- Since androgenetic alopecia is an expression of aging, and modern medicine has limited means to counteract aging, treating this type of hair loss is challenging.
- Androgenetic alopecia is not hereditary. Due to the inability of modern medicine to treat it with drugs, and the inevitability of human aging, many people mistakenly categorize it as hereditary hair loss, a fatalistic viewpoint.
- In theory, hereditary diseases can only be treated by altering the genetic DNA. However, androgenetic alopecia can be effectively treated with hair transplant surgery.

5.3 THE DIFFICULTY OF TREATING ANDROGENETIC ALOPECIA

Firstly, we must consider how to create the physical space for hair follicles. The lengthy process of hair loss involves the shedding of hair follicles and the gradual invasion of that space by sebaceous gland cells. To regenerate hair follicles, simple physics dictates that space must be provided. Creating space near the normal scalp is a complex and challenging task.

Secondly, the process of initiating hair follicle stem cells to regenerate hair follicles must be considered. Modern medicine typically uses various cytokines to stimulate stem cells for regeneration. Special stem cells require specific cytokines for stimulation, and as of now, no broad-spectrum stimulant has been discovered.

Thirdly, since hair loss is a localized manifestation of aging, caused by the cumulative effect of various factors over time, and since humanity currently has no effective means to combat age-related diseases, developing anti-aging methods is incredibly difficult.

5.4 THE MECHANISM OF USING CHLORINE DIOXIDE TO TREAT HAIR LOSS

When examining effective hair growth techniques, such as hair transplant surgery, the simplest concept for providing specific space for hair follicles is the artificial creation of wounds. Research has shown that the healing process of artificial wounds can generate new colonies of hair follicle stem cells and produce new hair. In hair transplant surgery, it is observed that the follicles in the transplanted area can regenerate after removal, and the hair in the balding area falls out completely after a three-month shedding phase post-transplantation, indicating that the regrowth in the balding area is not related to the transplanted follicles. The artificial wounds created by punching holes are the key to follicle regeneration in hair transplant surgery. The wisdom of the Chinese people and the extensive exploratory experience of

Traditional Chinese Medicine also offer an effective hair growth method, which is tapping the scalp with a plum blossom needle. Currently, Traditional Chinese Medicine hair growth clinics, regardless of the herbal medicines used, commonly employ plum blossom needle tapping as an auxiliary method. In fact, tapping with a plum blossom needle is the only method that might be effective for hair growth. This is because tapping creates numerous artificial wounds in the balding area, and even without the conditions for stem cell stimulation, new hair follicles may regenerate during the healing of these wounds.

Directly targeting damaged or aging tissues with chlorine dioxide can promote the regeneration of healthy tissue through two mechanisms: firstly, chlorine dioxide eliminates damaged and aging cells, providing specialized space for the growth of new tissue, which may involve the formation of micro-wounds and associated pain; secondly, chlorine dioxide mimics intracellular signaling molecules (ROS), stimulating the proliferation, migration, and differentiation of stem cells, which aids the healing process of micro-wounds. Guided by these specific spaces, the surrounding normal stem cells regenerate new, younger, and functional tissues through proliferation, migration, and differentiation. By clearing aging cells and making room for new tissue formation, the new tissue replaces the damaged one, thus curing diseases or restoring a youthful state to tissues.

Under my guidance, thousands of people have treated hair loss with relatively high concentrations of chlorine dioxide solution. In this series of applications, we have observed the following characteristics of chlorine dioxide treatment for hair loss: new growth can be seen within approximately 5 days; in areas not completely bald, there is a shedding phase during use, characterized by existing hair, starting with the finer strands, falling out rapidly before new growth occurs; in completely bald areas, new hair growth is delayed, possibly appearing only after 1-3 months; regardless of the degree of hair loss, using chlorine dioxide requires over a year to

potentially achieve a recovery that is visually indistinguishable from a non-balding condition (Figure 6).

Figure 6. Young men, after 5 applications, photos from before use, day 5 of use, and day 40 after use.

Figure 7. The author personally used chlorine dioxide intermittently for 5 years, approximately 50 times, and noticed a change in the hairline from smooth to jagged.

While chlorine dioxide has shown significant hair regrowth effects, it does not stimulate hair growth as rapidly as hair transplant surgery. Consequently, many individuals discontinue treatment after just a few days. However,

consistent use, like in my case over 5 years with approximately 50 intermittent applications, has led to noticeable new hair growth breaking through what was once a smooth hairline. Typically, hairlines are smooth, even for those experiencing hair loss. A jagged hairline suggests that new hair has regrown, likely as a result of using chlorine dioxide (Figure 7).

5.5 HAIR LOSS TREATMENT PROTOCOL

5.6 FREQUENTLY ASKED QUESTIONS ABOUT HAIR LOSS TREATMENT

- Can I be treated for seborrheic/hereditary hair loss ?

Seborrheic or hereditary hair loss, commonly known as androgenetic alopecia, was indeed a difficult condition to treat before. However, hair transplant surgery has become very effective, making androgenetic alopecia curable. With our pioneering chlorine dioxide hair growth technique, this type of hair loss can now be effectively treated. Chlorine dioxide works quickly against androgenetic alopecia, and with long-term use, it can cure hair loss. It is also cost-effective and convenient to use.

- Why does chlorine dioxide work so quickly?

In areas not completely bald, new hair growth can be observed in about 5 days when using chlorine dioxide. This is because chlorine dioxide quickly cleanses bad cells and

creates wounds; the acidic solution helps deliver chlorine dioxide to the stem cells of hair follicles, stimulating them to regenerate new follicles. Normally, wounds can heal naturally in 5 days, but with chlorine dioxide's ability to promote tissue regeneration, it's entirely possible for new hair follicles to regenerate in this time frame. The reason for such rapid regeneration in areas with hair is that the follicles and their spaces still exist, allowing new follicles to regenerate immediately.

- Why is the effect slower in completely bald areas?

In completely bald areas, almost all hair follicles are lost, and their spaces are taken over by sebaceous gland cells. Even with stimulation from chlorine dioxide, new follicles cannot regenerate due to physical space limitations, resulting in slower effects. However, by continuously creating micro-wounds, physical space for follicle survival can be created, and within 1-3 months, even in completely bald areas, healthier and thicker new hair can grow.

- Why is there a shedding phase, and can it be avoided?

Physical space remains the key to solving the problem of androgenetic alopecia. Due to space constraints, old follicles are not cleared, preventing new ones from regenerating. Natural follicle regeneration involves new follicles pushing out old ones in the resting phase, leading to new hair growth. Any effective hair growth technique, including minoxidil (Rogaine) and finasteride (Propecia), will have a shedding phase. Even effective hair transplant surgeries show a shedding phase in the first three months. Currently, the shedding phase seems unavoidable and must be endured during hair growth treatment. The psychological impact of the shedding phase is significant. Unlike hair transplant surgery, using chlorine dioxide does not require shaving the head completely. During the shedding phase, the hair that falls out is typically long, and new hair grows at a rate of 1 millimeter every 3 days, making the shedding phase more noticeable, especially for women with long hair.

- How can women avoid the shedding phase?

Since female hair loss is generally not as severe as male hair loss, it is recommended to use a plum blossom needle and reduce the continuous use of chlorine dioxide. For example, use it for three consecutive days, choosing one day to tap the scalp with a plum blossom needle, then stop for a week, and continue this cycle. Men can also use this method to avoid a noticeable shedding phase. For men who can tolerate the shedding phase, tapping the scalp with a plum blossom needle once a week is also beneficial.

- The shedding phase is due to the hair being burned off, right?

The shedding phase is not due to hair being burned off. While chlorine dioxide does have a mild corrosive effect on hair, similar to the action of hydrogen peroxide used in hair dyeing, it does not burn the hair off. The reasons for this are as follows: If chlorine dioxide burned the hair, continuous use would not result in the observation of new hair growth, nor would the new hair continue to grow. However, in practice, with continuous use for 20 days, new hair begins to grow around the fifth day and continues to grow, reaching about 0.5 centimeters by the 20th day. Secondly, if the hair were burned off, the hair shed during the shedding phase would not carry the hair follicle, but in reality, most of the hair shed during this phase does have a slightly thicker follicle attached. Thirdly, if the hair were burned off, the original hair would naturally grow back, and after 1-2 months without using chlorine dioxide, a large amount of new hair growth would not be possible. Yet, in reality, after using chlorine dioxide for a period, such as 20 days, and then stopping, one can observe a significant amount of new hair growth after 1-2 months.

- Why does hair growth take so long?

My experiments have shown that, depending on the degree of hair loss, it takes about 1-2 years to recover to a state where hair loss is not visually apparent using chlorine dioxide. Since

chlorine dioxide does not need to be used continuously, the total usage time is about one year. Hair growth is challenging, and even before my chlorine dioxide hair growth technique was proposed, effective hair growth methods such as hair transplant surgery also required more than six months to achieve the goal of hair restoration. This includes a three-month shedding phase and another three-month growth period. To be precise, it takes about eight months for hair to fully grow in the transplant area. Our technology has solved two hair loss challenges: creating regenerative space for hair follicles and stimulating hair follicle stem cells to regenerate new follicles. Even so, hair loss, which is often seen as an aging issue, cannot be resolved in just 1-2 months. Considering the time it takes for hair loss to occur, which is generally 5-10 years, the tissue structure of the hair loss area is completely different from that of areas with hair. It is entirely logical that rebuilding a new tissue structure would take 1-2 years.

- Is it necessary to use other medications in conjunction with chlorine dioxide?

I believe that chlorine dioxide addresses the fundamental issues of hair loss and comprehensively solves the problem, with long-term use potentially curing hair loss. Therefore, I do not recommend using it in conjunction with other medications. However, I suggest using it with a plum blossom needle, which can be quite beneficial for hair growth if used correctly (for example, tapping as hard as one can tolerate, to the point of bleeding).

- What are the benefits of tapping the scalp with a plum blossom needle?

One of the challenges in treating androgenetic alopecia is how to provide physical space for the growth of new hair follicles. While chlorine dioxide can create micro-wounds, the scale and number are not sufficient for rapid hair growth. We take inspiration from hair transplant surgery, which creates larger wounds artificially, theoretically accelerating the follicle regeneration process. When using the plum blossom

needle on the scalp, I recommend tapping as hard as one can tolerate, to the point of bleeding. Users need not worry about wound infection, as chlorine dioxide can sterilize and prevent infection, as well as accelerate wound healing.

6. TREATING ALOPECIA AREATA WITH CHLORINE DIOXIDE

Alopecia areata, also known as “spot baldness,” is a common hair loss condition characterized by the sudden, unanticipated shedding of hair in one or more circular or oval areas, resulting in complete bald patches in those areas. The size of the bald patches can vary from as small as a few millimeters to as large as several centimeters.

The exact cause of alopecia areata is not fully understood at present, but it is generally believed to be related to autoimmune diseases, where the immune system mistakenly attacks normal hair follicle cells. Other possible triggering factors include genetics, stress, certain diseases, or infections.

Alopecia areata is typically self-limiting, meaning that in many cases, hair naturally regrows within a few months. However, relapses are common, and some individuals may experience cycles of hair loss and regrowth multiple times. Treatment methods may include local corticosteroids, immunotherapy, or the use of hair growth agents such as minoxidil to promote hair regrowth.

In severe cases, alopecia areata may progress to total scalp baldness (alopecia totalis) or total body hair loss (alopecia universalis). It is important to note that alopecia areata itself does not cause physical pain or discomfort, but it may have an impact on the psychological and emotional well-being of patients. Therefore, psychological support and counseling are also important components of the treatment plan for alopecia areata.

The spontaneous recovery rate of alopecia areata is approximately 80%, meaning that 80% of alopecia areata patients are able to recover hair growth within a year. However, for the remaining 20%, alopecia areata is a long-term challenge. I will present a case study on how chlorine dioxide is used to treat alopecia areata.

6.1 CASE REPORT OF USING CHLORINE DIOXIDE TO TREAT ALOPECIA AREATA

In June 2013, two patients with alopecia areata, a 38-year-old female (Patient A) and a 42-year-old male (Patient B), were hospitalized. Patient A had been experiencing the condition for four months, while Patient B for over five years. Both underwent treatment with traditional Chinese herbal medicine, both orally and topically. Additionally, Patient B received hydrocortisone injections for one year, which resulted in 80% hair regrowth. However, the alopecia recurred six months later, with an increase in the affected area.

The hair loss in Patients A and B affected approximately 50% and 60% of their scalps, respectively. Examination revealed visible hair follicles and a soft scalp in Patient A, whereas Patient B's alopecia region was smooth, hardened, and exhibited excessive sebum production. This could be attributed to the shorter duration of alopecia in Patient A, allowing the preservation of interstitial space after hair follicle loss, in contrast to Patient B, where prolonged disease duration led to cell replacement in the interstitial space, resulting in scalp hardening and sebum overproduction. Neither patient had additional symptoms or comorbidities.

Both patients commenced treatment with oral prednisolone, administered weekly at 200 mg for three months. After two months, Patient A reported no improvement and elected to discontinue the treatment due to potential side effects concerns. Subsequently, Patient A

inquired about a cosmetic product containing a 2% acid chlorine dioxide solution with a pH of 4.6, which she discovered through social media. Recognized as an oxidizing agent and used in disinfectants like mouthwash, chlorine dioxide shares chemical properties with ROS, which are implicated in type 2 diabetes prevention and inflammation-related diseases through physical activity. We posited that chlorine dioxide could emulate ROS, mediating immune responses and enhancing tissue regeneration.

Upon applying acid chlorine dioxide solution to Patient A's alopecia region twice daily, she experienced acute pain and redness on the second day. By the sixth day, hair exposed to acid chlorine dioxide solution at the alopecia border fell out and immediately regenerated, indicating anagen phase induction in the hair follicles. This effect mirrored ROS's role in promoting tissue regeneration. Consequently, we ceased prednisolone treatment for Patient B on day 70 and initiated acid chlorine dioxide solution treatment, observing similar hair follicle regeneration.

Patient A discontinued hospital treatment after 15 days for personal reasons. Forty days later, hair regrowth was evident in the alopecia region, and by day 70, the condition was fully resolved with no recurrences over three years, though some newly grown hair was white. Patient B underwent acid chlorine dioxide solution treatment for 100 days, ceasing once hair regrowth was observed, with no recurrences over the following three years (Figure 8).

Alopecia areata, an autoimmune skin disease, has an unpredictable course, with 80% of patients experiencing spontaneous hair regrowth within the first year. Traditional treatments, which typically involve immunosuppression, can have severe side effects, thereby limiting their usage. ROS-promoting agents have been effective in treating autoimmune diseases like rheumatoid arthritis. We hypothesize that chlorine dioxide could replicate ROS's immunoregulatory and tissue regenerative functions in affected tissues. The cases

presented corroborate this hypothesis, with cure times varying and longer in Patient B due to the more extended disease duration and severe symptoms, suggesting that spontaneous healing was unlikely.

Despite chlorine dioxide's current use in cosmetics and mouthwash, it has not been utilized as a therapeutic drug. The outcomes from these cases indicate its potential as a treatment for alopecia areata and other autoimmune skin diseases.

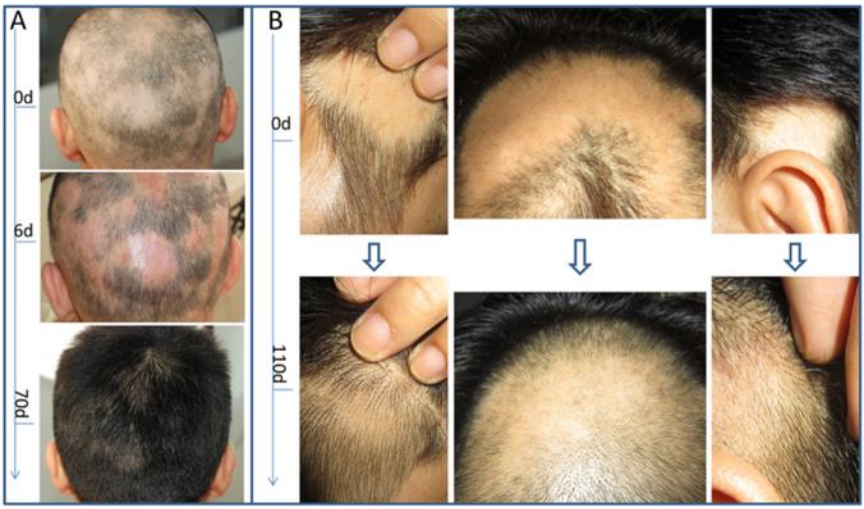


Figure 8. (A) Depicts sequential photographs of Case A prior to treatment (Day 0), during treatment (Day 6), and post-treatment (Day 70), during which acid chlorine dioxide solution was topically applied for 15 days. (B) Shows sequential photographs of Case B prior to treatment (Day 0) and post-treatment (Day 110), with a treatment duration of 100 days utilizing acid chlorine dioxide solution.

6.2 THE MECHANISM OF USING CHLORINE DIOXIDE TO TREAT ALOPECIA AREATA

In our trials with specific cases, patients with alopecia areata for less than a year had softer scalps. This suggests that the spaces once occupied by lost hair follicles might still exist, making the scalp feel noticeably soft and even hollow when pressed. It's this presence of follicle spaces that gives alopecia areata a roughly 80% chance of self-recovery within a year. Conversely, the treatment becomes significantly more challenging for patients whose alopecia areata has not self-healed after a year. We speculate that when follicle spaces are still present, regrowth of follicles is relatively easier. For patients with alopecia areata lasting over a year, their scalps have hardened and become oilier, indicating a lack of space for new follicle growth. The original follicle spaces may have been overtaken by sebaceous gland cells, making it difficult for new follicles to regenerate.

In our therapeutic practice, we've also observed a pattern: patients with alopecia areata within a year have a greater likelihood of hair recovery; those with the condition for over a year require more time for hair regrowth. Hence, we believe that the tissue regenerative properties of chlorine dioxide are beneficial for the recovery of hair in alopecia areata patients. We further hypothesize that chlorine dioxide might kill and clear some of the existing scalp cells through its oxidizing action, creating space for follicle regeneration, thereby promoting the regrowth of hair follicles.

Extensive trials have shown that chlorine dioxide can reduce the inflammatory response in wounds. Whether in acne, wounds caused by plum blossom needle tapping on the head, or in mouse tail amputation wounds, no inflammation was observed when treated with a chlorine dioxide solution. I have personally experienced immediate relief from arthritis symptoms after about ten injections of a chlorine dioxide

solution (various formulations) near the hip joint, which may also be due to the anti-inflammatory effects of chlorine dioxide.

We postulate that the potential mechanism by which chlorine dioxide reduces inflammation involves two aspects: firstly, chlorine dioxide can clear foreign bodies and antigens from the body through its oxidizing action, naturally reducing the immune system's inflammatory response; secondly, chlorine dioxide has properties similar to ROS, which are one of the key factors in the immune system's inflammatory response. When chlorine dioxide enters body tissues, such as inflamed follicle spaces, it may replace the role of ROS, sending normal signals to the immune system, preventing the escalation of the immune response and instead diminishing its activity. This is manifested as a reduction in inflammation.

In terms of modulating immune responses, chlorine dioxide seems to block the immune system's pathway of attacking hair follicles, which is the primary mechanism of action in treating alopecia areata. Additionally, in the treatment of other autoimmune skin diseases, we have observed similar effects of chlorine dioxide in reducing inflammation and promoting tissue regeneration.

6.3 ALOPECIA AREATA TREATMENT PROTOCOL

7. TREATING ACNE WITH CHLORINE DIOXIDE

The formation of acne is primarily caused by three factors: First, excessive secretion of oils, especially during puberty when hormones stimulate the sebaceous glands, leading to a large amount of oil excreted through the pores; second, if the old keratinized cells are not effectively shed during the skin's metabolic process, they can block the pores, resulting in oil accumulation and the formation of bumps; third, these bumps alter the structure of the skin, and the increased pressure may cause the skin surface to rupture. At this point, acne bacteria, which rely on skin oils for survival, can invade and cause infection, ultimately leading to the formation of swollen pimples, including acne, blackheads, whiteheads, or folliculitis.

Generally, acne is removed by squeezing pustules, but frequently doing so can enlarge the wounds and lead to repeated skin infections, eventually leaving acne scars. The correct method for acne removal should be three-pronged: clear away the aged skin cells to keep the pores open; kill the acne bacteria and regulate the immune response to prevent infection; and regenerate new skin to heal wounds.

7.1 THE MECHANISM OF CHLORINE DIOXIDE IN TREATING ACNE

The treatment of acne with chlorine dioxide involves several key mechanisms: Firstly, it helps to clear away aged and damaged skin cells, including senescent cells and cancer cells, to ensure pores remain unobstructed; secondly, chlorine dioxide possesses antibacterial properties effective against

acne-causing bacteria, aiding in immune response regulation and reducing infections; finally, it may promote the regeneration of damaged tissue and restore immune balance by modulating the immune system. This approach avoids the skin damage and infections caused by physical squeezing, thus treating acne more effectively and reducing the formation of acne scars.

Under my guidance, many individuals have used chlorine dioxide to treat their acne, often seeing complete clearance of facial acne after three consecutive applications, with the entire face regaining smoothness within a month (Figure 9).

Figure 9. A woman, using chlorine dioxide treatment three times consecutively, and comparing the before and after results after 15 days.

7.2 ACNE TREATMENT PROTOCOL

8. TREATING DRY EYE SYNDROME WITH CHLORINE DIOXIDE

8.1 DRY EYE SYNDROME AND CHLORINE DIOXIDE

Dry Eye Syndrome (DES) is a common ocular condition involving tear production and tear film stability, affecting eye comfort and visual performance. It can be caused by various factors, including aging, hormonal changes, environmental influences, side effects of medications, certain medical conditions, or eye surgery.

Etiology: The onset of dry eye can generally be attributed to two main categories: decreased tear production and increased tear evaporation. Decreased tear production may be due to lacrimal gland dysfunction, which can be associated with autoimmune diseases (such as Sjögren's syndrome) or other systemic conditions. Increased tear evaporation is often related to eyelid margin diseases (such as blepharitis or styes), eyelid structural abnormalities, incomplete blinking, or prolonged exposure to computer screens.

Symptoms: Symptoms of dry eye are varied and can include dryness, pain, a burning sensation, the feeling of a foreign body in the eye, blurred vision, and fatigue. Some patients may also experience excessive tearing as the eyes try to compensate for the dryness. Additionally, symptoms can be exacerbated by environmental factors such as wind, low humidity, smoke, or air-conditioned environments.

Diagnosis: The diagnosis of dry eye is typically based on symptoms, medical history, and a series of ophthalmologic

examinations. Doctors may test tear production, such as with the Schirmer test, and measure tear film break-up time (TBUT) to assess the quality and stability of the tear film. Additionally, special dyes may be used to examine damage to the ocular surface.

The treatment of dry eye aims to restore ocular lubrication and alleviate symptoms. Treatment options include:

(1) Artificial Tears: Using preservative-free artificial tear eye drops can provide temporary relief.Tear Conservation: Small surgical procedures to block the tear ducts can reduce tear drainage to keep the eyes moist.

(2) Eyelid Hygiene: Regular cleaning of the eyelid margins, using warm compresses and massage, can help improve oil secretion.

(3) Medications: Anti-inflammatory medications such as cyclosporine eye drops or oral Omega-3 fatty acid supplements may help reduce inflammation.

(4) Environmental and Lifestyle Adjustments: Using humidifiers, avoiding direct air conditioning, reducing screen time, and taking regular breaks can help alleviate symptoms.

Experience in treating dry eye has taught us that it is a difficult condition to cure. I have personally used chlorine dioxide for self-treatment on several occasions, after which there were no recurrences. In my analysis, research on chlorine dioxide may reveal its dual role: on one hand, it stimulates tear secretion, alleviating symptoms of dry eye; on the other hand, chlorine dioxide may have immunomodulatory capabilities. Upon contact with the conjunctiva, it can suppress inflammatory responses, helping to restore immune system balance.

8.2 DRY EYE SYNDROME TREATMENT PROTOCOL

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9. TREATING PHARYNGITIS WITH CHLORINE DIOXIDE

9.1 PHARYNGITIS AND CHLORINE DIOXIDE

Chronic pharyngitis is a long-term inflammation of the mucous membrane of the pharynx and its underlying tissues. It can be caused by various factors, including persistent viral or bacterial infections, smoking, environmental pollutants, excessive use of the vocal cords (such as frequent loud speaking or singing), alcohol consumption, chronic sinusitis, or allergies. Additionally, gastroesophageal reflux disease (GERD) can cause stomach acids to reflux into the throat, causing or exacerbating chronic pharyngitis.

Symptoms of chronic pharyngitis include persistent throat discomfort, dryness, itchiness, or a sensation of a foreign body in the throat. Patients may frequently clear their throat or cough in an attempt to relieve these symptoms. Sometimes, they may feel mucus stuck in their throat, usually due to increased mucus production caused by inflammation. Sore throat, hoarseness or voice changes, and difficulty swallowing may also occur.

Diagnosis of chronic pharyngitis is typically based on symptoms and a clinical examination. A doctor may use a laryngoscope to inspect the throat. In some cases, further tests such as a throat swab culture, blood tests, or imaging studies may be necessary to rule out other potential conditions.

Current treatments for chronic pharyngitis focus on relieving symptoms and addressing the underlying cause. If an infection is responsible, antibiotics or antiviral medications may be required. For chronic pharyngitis caused

by smoking or environmental factors, avoiding these irritants is crucial. Quitting smoking and limiting alcohol are vital for symptom relief. If chronic pharyngitis is related to GERD, doctors may recommend antacids or other treatments for gastroesophageal reflux.

Regarding my own limited experience with chronic pharyngitis, it was a long-standing issue for me until I began regular exposure to chlorine dioxide. Over time, as I continued to come into contact with chlorine dioxide daily, I gradually forgot about my pharyngitis, which seemed to heal unnoticed. Considering that chronic pharyngitis is essentially an inflammation, and chlorine dioxide has significant anti-inflammatory properties, I believe that chlorine dioxide can be effective in treating chronic pharyngitis.

9.2 PHARYNGITIS TREATMENT PROTOCOL

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10. TREATING ECZEMA WITH CHLORINE DIOXIDE

10.1 ECZEMA AND CHLORINE DIOXIDE

Eczema, also known as atopic dermatitis, is a common skin condition characterized by dry, red, itchy skin, and sometimes accompanied by oozing or crusting symptoms. It is a long-term (chronic) condition that usually begins in childhood but can occur at any age, with some individuals experiencing it throughout their lives.

The exact cause of eczema is not fully understood, but it is believed to be the result of a combination of genetic and environmental factors. Genetically, studies suggest that there is a defect in the skin barrier function of individuals with eczema, possibly due to gene variations in skin proteins like filaggrin. Environmental factors, including irritants, allergens, temperature changes, foods, and stress, can all trigger or exacerbate eczema symptoms.

Symptoms of eczema vary widely among individuals, ranging from mild dryness and redness to severe itching and inflammation, and even cracking and bleeding of the skin. The severity of symptoms can fluctuate over time, with periods of improvement and sudden exacerbations, often referred to as "eczema flare-ups."

Currently, the goal of eczema treatment is to alleviate symptoms, reduce the frequency of flare-ups, and repair the skin barrier. Common treatments include moisturizers to prevent dry skin, topical corticosteroids or non-steroidal medications to reduce inflammation, and antihistamines to relieve itching. In some cases, immunomodulators or

biologics may be required if the eczema is related to allergic reactions.

Eczema is clearly an autoimmune skin disease, and like all such diseases, it is currently incurable in human medicine, with treatments aimed at symptom relief.

In one case of eczema I managed, treatment with chlorine dioxide produced rapid results. As shown in the pictures, the patient's eczema was widespread across the body, and multiple treatments tried previously had been ineffective. However, after following my guidance and using chlorine dioxide treatment continuously for 15 days, the patient's eczema was cured (Figure 10).

Figure 10. A 35-year-old male with a 1-year history of eczema achieved complete recovery after continuous treatment with chlorine dioxide for 15 days. The before-and-after pictures show the eczema being cured over a period of 60 days.

10.2 ECZEMA TREATMENT PROTOCOL

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11. TREATING PSORIASIS WITH CHLORINE DIOXIDE

11.1 PSORIASIS AND CHLORINE DIOXIDE

Psoriasis, also known as plaque psoriasis, is a chronic, recurrent skin disease characterized by red patches and silvery-white scales on the skin. It is a non-contagious condition, and the severity of symptoms can range from mild to severe, depending on the case. Psoriasis can occur on any part of the body, including the skin, nails, and even joints (referred to as psoriatic arthritis).

The exact cause of psoriasis is still not completely understood, but research suggests it is the result of a combination of genetic and environmental factors. Genetics play a significant role in psoriasis, with multiple genes associated with the development of the disease. Environmental triggers include skin injury, certain medications, stress, smoking, alcohol, and infections, among others.

Symptoms of psoriasis include patches of red skin covered with silvery-white scales. These patches can be itchy or painful and can vary in size from a few millimeters to several centimeters. In severe cases, the skin may crack and bleed. The symptoms of psoriasis often fluctuate, with periods of remission and exacerbation.

The diagnosis of psoriasis is mainly based on clinical presentation, and sometimes a skin biopsy is needed to assist in diagnosis. Currently, there is no cure for psoriasis, and treatment is mainly aimed at controlling symptoms and improving the patient's quality of life. Treatment methods include topical medications (such as corticosteroids, vitamin

D analogs, and tar preparations), phototherapy (ultraviolet light exposure), oral medications, and biologics. Biologics are a relatively new treatment method that work by targeting specific parts of the immune system to reduce inflammation and the excessive growth of skin cells.

In addition to medical treatment, patients can also take self-management measures to control symptoms, such as keeping the skin moisturized, avoiding known triggers, maintaining a healthy lifestyle and diet. Psychological support and education are also important components of treatment, as psoriasis can significantly impact a patient's mental health and quality of life.

Researchers are working hard to find more effective treatments and have gained a deeper understanding of the mechanisms of psoriasis. With scientific progress, new treatment strategies and targeted drugs are being developed to provide better treatment outcomes and improve the quality of life for patients. Although psoriasis is a long-term condition, many patients can achieve good symptom control and lead active lives through comprehensive treatment and effective self-management.

The treatment of autoimmune diseases should follow the mechanism of the immune system's abnormal attack on its own cells: typically, the immune system recognizes and attacks abnormal cells, leading to an inflammatory response. Without proper regulatory mechanisms, this inflammation can become chronic. Therefore, effective treatment strategies should include two steps: first, eliminating antigens that the immune system has mistakenly identified as abnormal; second, adjusting the signaling pathways to inform the immune system that the foreign substances have been cleared, encouraging it to stop the excessive response.

Chlorine dioxide has potential triple action in this regard; it may help eliminate wrongly identified antigens, regulate signaling pathways, and reduce the immune system's hyperactivity, thereby alleviating inflammation and

potentially restoring balance to the immune system, offering a cure for autoimmune diseases. For autoimmune skin conditions like psoriasis, the therapeutic mechanism of chlorine dioxide is no exception.

Under my guidance, two psoriasis patients have achieved quite good results using chlorine dioxide (Figure 11, Figure 12).

Figure 11. A 65-year-old man with a 20-year history of psoriasis used chlorine dioxide 35 times over a period of 50 days.

Figure 12. A 65-year-old European Caucasian patient with a 40-year history of psoriasis underwent treatment for two months, during which he used chlorine dioxide 30 times. It should be noted that the middle image depicts the patient during the use of chlorine dioxide, with complete hair loss on his legs. The final image reveals the complete regrowth of new hair.

11.2 PSORIASIS TREATMENT PROTOCOL

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12. TREATING VITILIGO WITH CHLORINE DIOXIDE

12.1 TREATING VITILIGO WITH CHLORINE DIOXIDE

Vitiligo is a common chronic skin condition characterized by varying sizes of white patches on the skin, caused by the loss of pigment cells (melanocytes). It affects about 0.5% to 2% of the global population and does not discriminate by race, gender, or age; anyone can develop the condition.

The exact cause of vitiligo is not fully understood, but research suggests that multiple factors may play a role, including genetic predisposition, autoimmune reactions, neurochemical factors, and environmental triggers. The autoimmune hypothesis, which proposes that vitiligo occurs when the immune system mistakenly attacks and destroys healthy melanocytes, is widely accepted. Additionally, evidence suggests a link between vitiligo and other autoimmune diseases such as thyroid disorders, diabetes, and pernicious anemia.

Clinically, vitiligo presents as one or more circular or irregularly shaped white patches on the skin with usually distinct edges, and hair in the affected area may also turn white. These patches are most commonly found on the face, hands, and torso, particularly in areas frequently exposed to the sun. While vitiligo does not cause physical pain or direct health issues, it can significantly impact the psychological and emotional well-being of patients, leading to reduced self-esteem and social difficulties.

Diagnosis typically involves clinical examination, and a doctor may use an ultraviolet lamp to inspect the skin and

identify white patches. In some cases, a skin biopsy or blood tests may be necessary to rule out other potential causes.

The goal of treating vitiligo is to restore skin color. Although there is no cure, various treatments can help manage the condition and improve appearance. Treatment options include:

(1) Medications: Topical creams such as corticosteroids, immunomodulators, or other drugs to promote pigment restoration.

(2) Phototherapy: Ultraviolet light exposure, particularly narrow-band UVB therapy, can stimulate melanocyte activity.

(3) Laser Treatment: Excimer lasers are effective for small areas of vitiligo.

(4) Skin Grafting: For some patients with resistant vitiligo, transplanting normal pigmented skin to depigmented areas may be considered.

(5) Cosmetics: Concealers and self-tanners can be used to cover white patches.

Clearly, as an autoimmune skin disease, vitiligo treatment, such as phototherapy, appears to utilize the function of ROS, since phototherapy generally produces ROS. Therefore, I surmise that by using chlorine dioxide to mimic ROS, vitiligo can be effectively treated as well.

Figure 13. A 15-year-old girl with a 2-year history of the condition experienced significant improvement after 30 days, with 7 treatments of chlorine dioxide in between.

I treated a case of vitiligo with chlorine dioxide, and as seen in the images, the results were significant (Figure 13).

The mechanism by which chlorine dioxide works in treating vitiligo is similar to its action in treating psoriasis. It regulates the immune system's abnormal response, reducing self-attack on the skin and thereby alleviating symptoms. Specifically, the mechanism of chlorine dioxide treatment for vitiligo may include the following aspects:

(1)- Clearing misidentified antigens: Chlorine dioxide may help eliminate antigens that the immune system has mistakenly identified as abnormal, which are key factors in the pathogenesis of autoimmune skin diseases.

(2)- Modulating signaling pathways: Chlorine dioxide might assist in adjusting the immune system's signaling pathways, signaling to the immune system that foreign substances have been cleared, which helps to stop the immune system's continuous attack on its own tissues.

(3)- Reducing hyperactivity of the immune system: By diminishing the immune system's overactivity, chlorine dioxide may help lessen inflammatory responses and potentially restore the immune system's normal balance.

12.2 VITILIGO TREATMENT PROTOCOL

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13. USING CHLORINE DIOXIDE FOR SKIN CARE

13.1 SKIN CARE AND CHLORINE DIOXIDE

Skin care is a broad concept encompassing a variety of methods and techniques aimed at enhancing the appearance, texture, and overall health of the skin. With advancements in medicine and technology, the field of skin care has developed many effective treatments, ranging from everyday skincare products to sophisticated medical beauty procedures. Here's a detailed look at some key aspects and common methods of skin care.

Basic Skincare: Basic skincare is the foundation of beauty routines. It typically involves three essential steps: cleansing, moisturizing, and sun protection. Proper cleansing helps remove oil, dirt, and dead skin cells from the skin's surface, preventing clogged pores and skin issues. Moisturizing maintains the skin's hydration balance, keeping it soft and supple. Sun protection is crucial for preventing premature skin aging and skin cancer, especially from UVA and UVB rays.

Cosmetics and Skincare Products: The market offers a myriad of cosmetics and skincare products containing ingredients like antioxidants, vitamins, plant extracts, and acids (like alpha-hydroxy and hyaluronic acids), designed to nourish the skin, improve uneven skin tone, and reduce fine lines and wrinkles. Choosing the right products should be based on individual skin types and specific skin concerns.

Skin Regeneration Techniques: Skin regeneration techniques such as microneedling, chemical peels, and laser therapy stimulate the skin's natural healing process and

promote the formation of new collagen, improving the skin's structure and appearance. Microneedling activates the skin's self-repair mechanism by creating tiny punctures on the surface. Chemical peels use acidic substances to remove dead skin cells, revealing younger, smoother skin underneath. Laser therapy treats skin issues like pigmentation, redness, and scars with specific light wavelengths.

Injections and Fillers: Injections and fillers work inside the skin through medical procedures to reduce wrinkles and skin laxity. Botulinum toxin injections (commonly known as Botox) temporarily reduce facial muscle activity, thus minimizing expression lines. Fillers, on the other hand, involve injecting substances like hyaluronic acid to fill in skin depressions or wrinkles, restoring the skin's fullness and smoothness.

High-Tech Beauty Devices: With technological advancements, more high-tech beauty devices are hitting the market, such as radiofrequency skin tightening, ultrasonic scalpels, and photorejuvenation. These devices use different types of energy, like thermal, sonic, or light waves, to promote skin firmness and rejuvenation. These treatments are typically performed in professional medical aesthetic facilities.

Natural Remedies: Natural and home remedies are also part of skin care, with many preferring to use natural ingredients like honey, oats, lemon juice, and tea tree oil for skin treatments. These ingredients often have anti-inflammatory, antibacterial, and hydrating properties.

Healthy Lifestyle: Besides external care, a healthy lifestyle is equally important for skin care. A balanced diet, ample sleep, regular exercise, and stress reduction all contribute to maintaining healthy, vibrant skin.

In summary, skincare is a multifaceted process that typically involves the removal of aging cells and the regeneration of youthful skin. Chlorine dioxide happens to serve both these functions. Through self-experimentation, I

have found that regular application of chlorine dioxide to the skin can produce noticeable beautifying effects.

I often use chlorine dioxide for experiments or treatments, and there is usually some leftover solution. I tend to apply this excess chlorine dioxide solution to my face, hands, or other parts of the body. I've noticed a significant increase in skin hydration, especially during dry seasons; my skin feels smoother; the skin tone appears more even; and the acne scars from my youth have visibly diminished.

13.2 SKIN CARE PROTOCOL

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14. TREATING RHINITIS WITH CHLORINE DIOXIDE

14.1 RHINITIS AND CHLORINE DIOXIDE

Chronic rhinitis is a common inflammatory condition affecting the mucous membranes within the nasal cavity, often persisting for several months. This condition can be triggered by various factors, including long-term exposure to irritants, allergic reactions, infections, or other health issues like nasal polyps or a deviated septum. Symptoms of chronic rhinitis vary from person to person but commonly include nasal congestion, runny nose (with clear or thick mucus), sneezing, itching in the nose, or facial pressure and pain.

The severity of symptoms can range from mild discomfort to significant disruption of daily life. Those with chronic rhinitis may find their symptoms fluctuate with environmental changes or shifts in personal health. Factors such as temperature shifts, humidity, air pollution, tobacco smoke, perfumes, and cleaning products may exacerbate symptoms. Additionally, upper respiratory infections like the common cold or influenza can cause a temporary worsening of symptoms.

In the case of allergic rhinitis, symptoms are typically caused by an immune response to specific substances, including pollen, dust mites, pet dander, and mold spores. This type of chronic rhinitis, also known as "hay fever," is characterized by a rapid increase in symptoms upon exposure to allergens.

Under current medical practices, there are various treatments for chronic rhinitis aimed at alleviating symptoms and improving quality of life. Treatments may include medication such as nasal corticosteroid sprays,

antihistamines, or immunotherapy. In some cases, surgical intervention may be necessary if chronic rhinitis is caused by anatomical abnormalities, such as a deviated septum or nasal polyps.

Besides medication, patients can also make lifestyle changes to manage symptoms, such as regularly cleaning their living space to reduce dust and allergens, using air purifiers, avoiding known irritants and allergens, maintaining moderate indoor humidity, and practicing good personal hygiene.

People with long-standing chronic rhinitis may experience complications like sinusitis, middle ear infections, or sleep disorders, including snoring or sleep apnea. Therefore, timely diagnosis and effective management of chronic rhinitis are crucial in preventing these complications.

Chronic rhinitis is a common condition that can usually be controlled with medication, lifestyle adjustments, and sometimes surgery when necessary. Although not a severe health issue, chronic rhinitis widely affects many people's daily lives. Fortunately, chlorine dioxide has shown promise in treating chronic rhinitis. Its therapeutic effects are primarily based on its anti-inflammatory and immunomodulatory abilities, and it may also play a role in clearing damaged cells, particularly in eliminating allergens that trigger chronic rhinitis, where chlorine dioxide can be effective.

14.2 RHINITIS TREATMENT PROTOCOL

Moving forward, the treatment protocol will undergo significant changes as we target areas deeper within the body. It's crucial to avoid potential side effects when using chlorine dioxide, such as not allowing acidic solutions to come into contact with the nasal mucosa.

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15. TREATING ARTHRITIS WITH CHLORINE DIOXIDE

15.1 TREATING AUTOIMMUNE DISEASES AND ARTHRITIS

Autoimmune diseases are a complex group of disorders characterized by the immune system mistakenly attacking and destroying the body's own healthy tissues. This process is known as an autoimmune response. Autoimmune diseases can affect any part of the body, including joints, muscles, skin, red blood cells, blood vessels, internal organs, and endocrine glands.

- **The Immune System and Autoimmune Diseases**

Normally, the immune system protects the body from pathogens such as bacteria, viruses, and parasites. It does this by recognizing and attacking these foreign invaders. However, in autoimmune diseases, the immune system loses the ability to distinguish between self-tissues and foreign substances, leading to attacks on and destruction of normal cells and tissues.

The exact causes of autoimmune diseases are not fully understood. Genetic factors are thought to make some individuals more susceptible to these diseases. Environmental factors, such as viral infections, exposure to ultraviolet light, certain drugs, and chemicals, as well as lifestyle factors like smoking and dietary habits, may also play a role in the development of these diseases.

- **Classification and Symptoms**

Autoimmune diseases can be classified into two major categories: organ-specific and systemic. Organ-specific autoimmune diseases primarily affect a specific organ or tissue type, such as Type 1 diabetes affecting pancreatic islet cells, while Hashimoto's disease targets the thyroid. Systemic autoimmune diseases, such as systemic lupus erythematosus and rheumatoid arthritis, can affect multiple parts and systems of the body.

The symptoms of autoimmune diseases vary from person to person and depend on the affected tissues and organs. Common symptoms include fatigue, fever, joint pain and swelling, skin rashes, muscle pain, and functional impairments. These symptoms can range from mild to severe and sometimes may even be life-threatening.

- **Diagnosis and Treatment**

Diagnosing autoimmune diseases typically involves a combination of medical history review, physical examinations, and laboratory tests, including blood and urine analysis, imaging studies, and specific antibody tests. Since symptoms of these diseases can mimic those of other conditions, the diagnostic process can be complex and lengthy.

Treatment options for autoimmune diseases are limited, aiming to alleviate symptoms, control the autoimmune response, and improve the patient's quality of life. Treatment approaches include medications, physical therapy, and lifestyle modifications. Medications may involve nonsteroidal anti-inflammatory drugs (NSAIDs), immunosuppressants, and biologics to control inflammation and immune responses. Physical therapy can help improve joint function and muscle strength. A healthy lifestyle, with a balanced diet, regular exercise, adequate sleep, and effective stress management, is also crucial for disease management.

- **Arthritis**

In clinical settings, rheumatoid arthritis (RA) is a common form of arthritis. RA is a systemic autoimmune disease that primarily affects the joints. It occurs when the immune system attacks the synovial lining of the joints, leading to inflammation and tissue damage. RA can affect individuals of any age but is most common in women between the ages of 40 and 60.

Symptoms of RA typically include joint pain, swelling, stiffness, and limited function, especially upon waking in the morning. As the disease progresses, joints may become deformed and eroded, potentially leading to permanent functional disability. Besides joint symptoms, RA can also cause systemic symptoms, such as fatigue, fever, and muscle pain.

Diagnosing RA relies on symptoms, physical examination, blood tests (including rheumatoid factor and anti-citrullinated peptide antibody tests), and imaging studies. The treatment goals for RA are to relieve symptoms, control inflammation, prevent joint damage, and improve quality of life. Treatment options include medications, physical therapy, surgical intervention, and lifestyle changes.

Under current treatment protocols, medication is the cornerstone of RA management, including NSAIDs, disease-modifying antirheumatic drugs (DMARDs), biologics, and corticosteroids. DMARDs and biologics can slow disease progression and prevent joint damage. Physical therapy helps maintain joint flexibility and muscle strength. In some cases, such as when joint damage is severe, surgical treatment, like joint replacement surgery, may be necessary.

15.2 THE PRINCIPLE OF USING CHLORINE DIOXIDE TO TREAT AUTOIMMUNE DISEASES

In the current treatment paradigm, therapies for autoimmune diseases mainly focus on symptom relief. However, if the underlying causes of the diseases are not addressed, patients may experience persistent or even worsening symptoms. The crux of autoimmune diseases lies in the immune system's inability to distinguish between self and foreign substances, leading to an erroneous attack on one's own cells and tissues. Thus, a fundamental cure for autoimmune diseases should aim to restore the immune system's ability to correctly identify self and to halt its misguided attacks.

In essence, compared to the complexity of directly correcting the immune system, a more feasible treatment approach is to remove the foreign substances that trigger the immune system's incorrect responses. Even if this process may involve some damage to normal tissues, once the targets of misidentification are eliminated, the immune system naturally ceases its attack on specific areas. Humanity has not yet managed to systematically correct immune system functions. Once the signals that trigger the erroneous responses are removed, the immune system's self-regulatory mechanisms should quickly intervene to stop the incorrect attacks. Ideally, using immunomodulators could further promote this process, potentially leading to a cure for autoimmune diseases. Given that chlorine dioxide has the capacity to clear damaged tissues (and cells) and balance immune responses, it is highly probable that chlorine dioxide can treat autoimmune diseases, including arthritis.

Although eczema, psoriasis, vitiligo, and alopecia areata are autoimmune diseases, they are relatively easier to find participants for treatment trials because they are skin conditions. In contrast, it is nearly impossible to find trial participants for other autoimmune diseases. Multiple trials I mentioned before have demonstrated that chlorine dioxide can treat autoimmune skin diseases, with a large number of people included in these use cases. However, to verify the

treatment of arthritis with chlorine dioxide, I had to resort to self-experimentation.

I cured my nearly 20-year-long arthritis by injecting chlorine dioxide into my hip joint about ten times.

Combining the potential roles of chlorine dioxide in clearing damaged cells and modulating immune responses, and the treatment principles for autoimmune diseases mentioned earlier, I deduce the following mechanism for chlorine dioxide's effectiveness in treating autoimmune diseases:

(1) Chlorine dioxide might help clear the damaged cells that trigger the immune system's misidentification through its oxidizing action, reducing the immune system's attacks on healthy tissues. In this way, it could temporarily eliminate the signals causing the immune system's mistaken attacks, thereby slowing down or stopping the destruction of one's own tissues.

(2) Chlorine dioxide might have a balancing effect on the immune system's response, helping to regulate an overly active immune reaction. This regulation could contribute to restoring the normal function of the immune system and reducing the erroneous self-attacking behavior.

In theory, any localized, rather than systemic, autoimmune diseases with inflammation could be effectively treated by delivering chlorine dioxide directly to the affected area. Since I have not treated other internal autoimmune diseases, we will only discuss the treatment of arthritis with chlorine dioxide here.

15.3 ARTHRITIS TREATMENT PROTOCOL

Moving forward, the treatment protocol is set to change significantly. As the focus shifts toward treating areas deeper within the body, we will need to prepare injectables that require specialized equipment and facilities. Moreover, these

injectables must be administered by qualified medical professionals. It is important to note that currently, no country has approved chlorine dioxide injectables as a new drug. Therefore, under the existing medical system, no one, including myself, can use chlorine dioxide injectables to treat anyone unless they are willing to undertake bold self-experimentation. Hence, it is crucial to understand that this treatment protocol should be viewed as a potential future strategy and should not be adopted as a current treatment option.

Standard Arthritis Treatment Protocol:

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16. TREATING CANCER WITH CHLORINE DIOXIDE

16.1 A DEEPER UNDERSTANDING OF CANCER TREATMENT

Cancer refers to a disease where cells in the body lose control over their normal growth and division, continuously multiplying to form tumors. Solid tumors are those that arise from the abnormal proliferation of cells in specific organs, as opposed to hematologic tumors like leukemia. Solid tumors can be benign or malignant, with the latter being cancerous. Malignant solid tumors are invasive, breaching the boundaries of their original tissues, spreading to surrounding areas, and metastasizing to other parts of the body through the blood or lymphatic systems.

Cancer can be caused by various factors, including genetics, environmental exposures (like smoking, chemicals, and radiation), lifestyle choices (such as diet, weight, and exercise), and infections (from certain viruses and bacteria, for instance). The development of cancer can span many years, starting from normal cells to precancerous lesions, and ultimately to malignant tumors.

There are multiple treatment options for cancer, including surgery, radiation therapy, chemotherapy, targeted therapy, and immunotherapy. Surgery is commonly used to remove localized tumors. Radiation and chemotherapy aim to kill or halt the growth of cancer cells. Targeted therapy and immunotherapy are relatively newer treatments that leverage our understanding of the biological characteristics of cancer cells.

However, current treatments have several drawbacks. Surgery can remove tumors but is often ineffective against metastasized cancer. It carries high risks, causes significant trauma to the patient's body, requires a long recovery period, and may miss tiny cancer cells, leading to recurrence. Radiation and chemotherapy can target cancer cells throughout the body but are imprecise and toxic to normal cells, causing side effects like nausea, vomiting, hair loss, and immunosuppression. Due to the heterogeneity and adaptability of cancer cells, chemotherapy may not eradicate all cancer cells, and drug resistance can develop, reducing the effectiveness over time.

Targeted therapy and immunotherapy represent advancements in cancer treatment, offering more precise targeting of cancer cells or modulating the immune system to recognize and destroy them. However, targeted therapies only work on specific molecular targets, necessitating the expression of these targets on cancer cells. Cancer cells may lose these targets due to genetic mutations, leading to treatment failure. Immunotherapy has shown remarkable results in certain cancers, but not all patients respond, and it can sometimes trigger excessive immune responses that damage healthy tissue.

Both targeted therapy and immunotherapy are important modern cancer treatments, but they both have significant issues with resistance. Targeted therapy inhibits the growth and spread of cancer cells by focusing on unique molecular markers and signaling pathways, while immunotherapy aims to activate or boost the patient's immune system to identify and eliminate cancer cells.

Resistance to targeted therapy typically develops during treatment, as cancer cells evade the effects of drugs through genetic mutations or changes in expression. For instance, some drugs work by binding to specific proteins on the surface of cancer cells. However, cancer cells may alter the structure of these proteins to reduce drug binding or activate alternative growth signaling pathways to sustain their growth.

Additionally, drug pumps within cancer cells can be activated to expel drugs from the cell, reducing the effective drug concentration. Due to these mechanisms, cancer cells can survive under treatment pressure, potentially leading to disease relapse or progression.

Immunotherapy resistance involves the complex interplay between cancer cells and the immune system. Cancer cells can evade immune surveillance through various mechanisms, such as expressing inhibitory molecules like PD-L1 to suppress T cell activity. Immunotherapies, like PD-1 or PD-L1 inhibitors, aim to block these inhibitory signals, but cancer cells may adapt by increasing other immune suppressive pathways. Moreover, other cells in the cancer cell microenvironment, such as regulatory T cells and tumor-associated macrophages, may counteract the tumor immune response, further promoting the development of resistance.

Although targeted therapy and immunotherapy have achieved some clinical success, the development of resistance remains a significant challenge. Due to the inevitable resistance, even these latest cancer treatment methods cannot

Table 1. Around 2020, statistics on cancer mortality data

Country/region	Cancer mortality	Total population	Cancer mortality rate
United States	609,820	330,730,000	0.18%
China	3,210,000	1,400,000,000	0.23%
Japan	376,425	125,554,329	0.30%
European Union	1,269,200	446,815,000	0.28%

be used repeatedly to treat cancer, and in the long term, they seem fleeting and unable to defeat cancer.

On the other hand, as can be seen from the table below, regions with much better cancer treatment conditions than

China do not show a significantly lower cancer mortality rate compared to China, suggesting that modern cancer treatment methods have a limited effect during the fight against cancer (Table 1).

To evaluate the effectiveness of a cancer treatment method, we need to consider five key dimensions: convenience, safety, inhibition rate, drug resistance, and treatment sustainability. For example, oral chemotherapy drugs are relatively convenient to use but perform poorly in terms of safety, inhibition effect, and drug resistance. On the other hand, surgical treatment shows excellent results in inhibition and drug resistance, but its convenience and sustainability are lower due to the inability to be repeated frequently. Radiation therapy scores low in convenience and safety but has moderate inhibition effect, drug resistance, and good sustainability, making it suitable for cancer treatment at various stages. Targeted drugs and immune checkpoint inhibitors face challenges in drug resistance and sustainability. Although they can extend patients' survival for a period of time, many patients may still unfortunately pass away in the end.

An ideal cancer treatment should score high in all five aspects, which would potentially transform cancer into a chronic disease or even achieve its ultimate cure. Currently, the major cancer treatment methods do not score high in all these five dimensions. To improve the scores in each aspect, modern medical technology often focuses on a few dimensions. For example, directly injecting chemotherapy drugs or immunotherapy drugs into the tumor can significantly improve the scores in safety and inhibition rate at the expense of convenience.

16.2 RESEARCH ON CHLORINE DIOXIDE TREATMENT FOR CANCER[4]

I. Research Summary

Our team is currently investigating the use of chlorine dioxide for cancer treatment. Chlorine dioxide shares similar properties with powerful oxidizing agents known as ROS, which have been shown to destroy cancer cells and aid in tissue repair. We have discovered that chlorine dioxide can be safely used as a therapeutic agent in humans. Our research focuses on delivering chlorine dioxide directly into tumors as an innovative approach to cancer treatment. By targeting the tumor directly, chlorine dioxide can specifically kill cancer cells without promoting drug resistance. Additionally, chlorine dioxide has demonstrated the ability to stimulate an immune response against cancer, further enhancing its therapeutic effects. Our goal is to extend the lives of patients and transform cancer into a manageable chronic illness by injecting chlorine dioxide directly into tumors. This groundbreaking treatment utilizes the ROS-mimicking abilities of chlorine dioxide to eliminate cancer cells and promote tissue regeneration. By harnessing the unique properties of chlorine dioxide, we offer a new pathway to improve patient outcomes in cancer treatment. Ongoing studies are necessary to refine the delivery methods and dosage of chlorine dioxide, as well as explore its combined effects with other treatments. As research progresses, direct tumor injection of chlorine dioxide emerges as an exciting and promising approach to effective cancer therapy.

II. Introduction to the Research

Certain natural compounds or drugs that target Superoxide dismutase (SOD) have an incredible ability to selectively kill cancer cells by increasing the production or

4 This section is mainly derived from my paper : https://doi.org/10.1101/2023.11.24.568512

accumulation of ROS. Additionally, the body's own neutrophils can generate ROS, which aids in the destruction of cancer cells. Some drugs are designed specifically to elevate ROS levels within cancer cells, resulting in sustained suppression of the disease. For example, the combination of metformin, which raises ROS levels, and apigenin, which enhances this effect, exhibits a potent anticancer action while sparing healthy cells. Photodynamic therapy (PDT) is another technique that utilizes light to activate a photosensitizer drug in the body, generating singlet oxygen ($^1O_2$). This sudden surge of oxygen induces toxicity in tumor cells, leading to their death through apoptosis or necrosis. PDT not only directly targets and kills the tumor but also stimulates dendritic cells to release cell death-associated molecular patterns (DAMPs), initiating an immune response that targets antigens and promotes an anti-tumor immune reaction.

Building on this concept, our hypothesis suggests that the external addition of ROS or similar compounds could effectively destroy tumors and, similar to PDT, trigger an antitumor immune response. In this context, we have chosen chlorine dioxide as a ROS-mimicking oxidant to evaluate its potential in cancer treatment. chlorine dioxide, denoted by its chemical formula ClO_2, is a powerful oxidizing agent with disinfectant properties. Its applications span various fields, including water purification, food sanitation, medical sterilization, and environmental decontamination. chlorine dioxide efficiently breaks down the cell membranes and DNA of bacteria, viruses, and other microbes, effectively eliminating pathogens and impurities. Notably, at a low concentration of 0.25 mg/L, chlorine dioxide can eliminate 99% of E. coli (15,000 cells/mL) within just 15 seconds. Furthermore, research has demonstrated that chlorine dioxide and hydrogen peroxide have similar efficacy in inducing cell death in human gingival fibroblasts.

ROS are generated during cellular respiration for ATP synthesis. However, the widespread production of ROS in the body and the limited capacity to rapidly eliminate a significant

number of cells, particularly within tumor tissues, present significant challenges. These obstacles are primarily attributed to tumor hypoxia, characterized by low oxygen levels in the tumor environment. To establish a new standard for cancer treatment, it is crucial to increase the concentration of chlorine dioxide to a level where it can effectively eradicate large tumor masses, surpassing the body's natural production of ROS. Additionally, due to the short lifespan of chlorine dioxide as an oxidizing agent in body tissues and the need to minimize systemic side effects, we have chosen intratumoral administration of chlorine dioxide as the most effective method to achieve our goal.

III. Research Results and Discussion

This research explored the impact of a compound called chlorine dioxide on tumors and tissues, using mice as subjects. The findings revealed intriguing outcomes. chlorine dioxide exhibited toxicity towards both cancer cells and normal cells, without specific targeting. When injected beneath the mice's skin, it caused significant damage to the skin. However, within approximately 20 days, the damaged tissue fully healed, returning to its normal state and regrowing hair. This suggests that although chlorine dioxide may harm tissues, the body possesses the ability to repair itself.

To investigate wound healing, cuts were made on the mice's tails. Mice treated with chlorine dioxide or hydrogen peroxide experienced accelerated wound closure compared to those treated with saline solution alone. The wounds healed approximately 6 days earlier. Chlorine dioxide appeared to aid in the removal of dead tissue debris near the wounds, potentially contributing to the healing process.

Furthermore, direct injection of chlorine dioxide into tumors in mice resulted in significant inhibition of tumor growth. The tumors decreased in size, and signs of dead tissue within the tumors were observed. Additionally, chlorine dioxide administration significantly reduced the spread of cancer to the lungs.

The researchers proposed two mechanisms by which chlorine dioxide operates. Firstly, it induces cancer cell death through apoptosis (programmed cell death) or necrosis (uncontrolled cell death). Secondly, this cell death triggers an immune response against the tumor. When the immune system detects dead tumor cells, it recognizes the presence of cancer and initiates an attack.

Although injecting chlorine dioxide into tumors provided a short-term boost to the immune system against cancer, this effect was not sustained in the long term. In fact, chlorine dioxide may potentially weaken immune responses over time by increasing certain immune-suppressing cells. Mice treated with chlorine dioxide injections exhibited higher levels of immune cells in their blood and spleen compared to untreated mice. Additionally, elevated levels of cytokines, proteins that regulate immunity, were detected. These findings confirmed that chlorine dioxide prompts an immune reaction against the tumor.

In conclusion, this study demonstrated that chlorine dioxide has a dual effect. It causes tissue damage while also promoting healing. It effectively reduces tumor size by inducing cancer cell death and briefly activating the body's natural anti-cancer defenses. However, the immune-boosting properties of chlorine dioxide are short-lived, highlighting the need for further research to understand its effects and how to prolong its efficacy. These findings suggest that chlorine dioxide or a similar compound may hold potential for cancer treatment, provided scientists can overcome the transient nature of its immune-boosting properties.

IV. Research Conclusion

Our research has uncovered the promising versatility of chlorine dioxide as a potential therapy for cancer. Chlorine dioxide shares similarities with ROS, particularly in its ability to promote tissue regeneration. This makes it a promising candidate for enhancing wound healing in cancer treatment, as tumors can be seen as wounds that struggle to heal. By

leveraging chlorine dioxide's regenerative properties, we may be able to improve patient recovery during cancer treatment.

Chlorine dioxide therapy offers several advantages over traditional cancer treatments. It not only reduces the complications and risks associated with the disease but also provides a safer and more effective option. Our proposed method of directly injecting chlorine dioxide into the tumor site allows for precise tumor destruction without encountering resistance, while simultaneously boosting the body's anti-cancer immune response. This targeted approach spares healthy tissue and takes advantage of chlorine dioxide's healing potential after tumor removal, aiming to enhance treatment outcomes.

The field of oncology is currently undergoing a transformation, thanks to immune checkpoint inhibitors. Ongoing clinical trials are exploring strategies such as intratumoral delivery and tumor-targeted compounds, which have shown promise in improving the local concentration of drugs and amplifying the effectiveness of immunotherapies. As new technologies emerge, the intratumoral administration of chlorine dioxide emerges as a viable, efficient, and patient-friendly approach to cancer treatment. This method has the potential to extend patient lifespans and alleviate the burden of treatment, revolutionizing cancer management into a more chronic illness-like approach (Figure 14).

To fully harness the potential of chlorine dioxide in cancer treatment, continued research is crucial. We need to refine the protocols for administering chlorine dioxide, determine optimal dosages, explore its compatibility with other treatments, and gain a comprehensive understanding of its effects on tumor tissue—both in terms of regeneration and destruction—as well as its ability to stimulate a systemic anti-cancer immune response. The ongoing investigation into chlorine dioxide highlights its potential as a significant tool in

cancer therapy, paving the way for improved patient care and clinical outcomes.

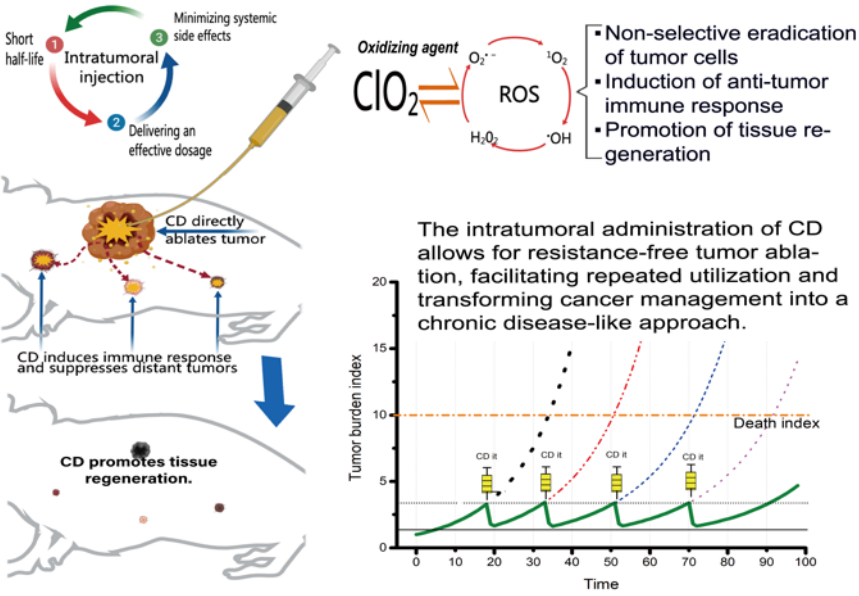

Figure 14. Graphical abstract：Intratumoral Delivery of Chlorine Dioxide Exploits its ROS-like Properties: A Novel Paradigm for Effective Cancer Therapy

In line with the previous section, we need to consider five key dimensions when evaluating an ideal cancer treatment approach: convenience, safety, inhibition rate, drug resistance, and treatment sustainability. Based on the information provided in the table above, it is clear that intratumoral injection of chlorine dioxide for cancer treatment performs exceptionally well in all five aspects, establishing it as an optimal approach for treating cancer (Table 2).

Table 2. Scoring chart for chlorine dioxide in cancer treatment

Key dimensions	Scores (out of 100)	The reasons for the scores.	Causes of Losing Points
Convenience	50	With the advancement of puncture techniques, intra-tumor injection is becoming increasingly easier.	It is less convenient than oral and intravenous injection.
Safety	95	The greatest advantage of intra-tumor injection is the absence of systemic side effects.	Inevitably, it causes some damage to normal tissues.
Inhibition Rate	90	Multiple pathways to inhibit injected tumors.	The inhibitory rate for tumors not injected remains relatively low.
Drug Resistance	100	Kills cancer cells without selection, eliminating drug resistance.	
Sustainability	95	It can be used repeatedly for long-term sustainability.	The convenience of intratumoral injection is relatively low.

16.3 CANCER TREATMENT PROTOCOL

The intratumoral injection method is not very convenient, as it requires specialized equipment and facilities for preparation, and the administration of the injection should be carried out by qualified healthcare professionals. It is crucial to understand that currently, chlorine dioxide injection has not been approved as a new drug by any country. Therefore, within the existing medical system, no one, including myself,

can utilize chlorine dioxide injection for treating individuals, unless they are conducting daring self-experiments. This treatment protocol should only be seen as a potential design for the future, and it should not serve as a foundation for treatment by anyone.

Standard Cancer Treatment Protocol:

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17. USING CHLORINE DIOXIDE FOR LOCALIZED FAT REDUCTION

17.1 CHLORINE DIOXIDE AND FAT REDUCTION

Localized fat reduction can be considered as a potential method for weight loss treatment. It involves various medical procedures, including medication and device-based treatments. These techniques can be used individually or in combination to enhance effectiveness and cater to individual needs.

Medication treatment primarily involves the injection of substances for fat reduction. One well-known medication is a mixture of phosphatidylcholine and deoxycholic acid, which can be directly injected into areas with localized fat deposits. These medications disrupt the cell membranes of fat cells, leading to the release of their contents, which are then metabolized by the body. Multiple injections may be required during the treatment process, with a recovery period needed after each session. Medication treatment is non-invasive and does not require surgery, but it may take several weeks to months for the results to become apparent, and its effectiveness may be limited for large areas of fat accumulation.

Device-based methods offer a diverse range of options for localized fat reduction. These methods include cryolipolysis (fat freezing), laser lipolysis, high-intensity focused ultrasound (HIFU), and radiofrequency (RF) technology.

These techniques utilize specific types of energy to destroy fat cells without damaging surrounding tissues.

Cryolipolysis involves lowering the temperature of fat cells to induce apoptosis, which is then naturally cleared by the body. Laser lipolysis uses specific wavelengths of light energy to heat and destroy fat cells. HIFU concentrates ultrasound energy on the fat tissue, generating a thermal effect that leads to fat cell death. RF treatment generates heat through radiofrequency energy, altering the structure and metabolism of fat cells. These device-based methods are typically performed under the supervision of medical professionals.

Localized fat reduction using these devices often yields faster results, with some methods like cryolipolysis showing effects within a few weeks after a single treatment. However, these methods may also have side effects such as temporary redness, pain, or altered skin sensation. Additionally, these treatments generally require specialized equipment and expertise making them relatively costly.

In the section discussing the use of chlorine dioxide for cancer treatment, we learned that chlorine dioxide can efficiently and safely break down tumors. Given the relative simplicity of fat tissue, it can be inferred that chlorine dioxide could also effectively and safely dissolve localized fat. When targeting localized fat for dissolution, chlorine dioxide be directly injected into the targeted fat area.

I conducted a self-experiment using chlorine dioxide to dissolve localized fat, as mentioned in the previous section. In my experiment, I injected the subcutaneous fat on the left side of my abdomen five times and the fat under my eye bags twice. After the injections, I a significant collapse in the injected areas, confirming the effectiveness of chlorine dioxide in local fat dissolution.

It is important to note that fat cells differ from other functional cells as they are more akin to overgrown cells with limited functionality. After using chlorine dioxide to dissolve localized fat, the rate of cell regeneration in that area is slower

than the normal wound healing process. Therefore, the use of chlorine dioxide for localized fat dissolution can be seen as a potential method for weight loss treatment.

17.2 FAT REDUCTION PROTOCOL

It is important to note that the use of chlorine dioxide injection for localized fat reduction is not currently approved by any regulatory authority as a new drug. Therefore, under the current medical system, it is not recommended for anyone, including myself, to use chlorine dioxide injections for the treatment of localized fat. The information provided here should be considered as a potential design for future treatments and should not be used for actual treatment purposes.

For standard fat reduction protocols：

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18. SUMMARY OF CHLORINE DIOXIDE TREATMENT PROTOCOL

In summary, the 13 chlorine dioxide treatment protocols presented in this book are based on extensive experimentation and experience. Chlorine dioxide has three key mechanisms of action: eliminating abnormal cells, promoting Tissue Regeneration, and regulating Immune Response. Each of the 13 protocols focuses on at least one of these mechanisms, with some incorporating all three. To facilitate understanding, the protocols are detailed in the final section of the book, clearly indicating the mechanisms they rely on.

I must emphasize once again that while I firmly believe in the potential therapeutic effects of chlorine dioxide, it is crucial to adhere to existing medical regulations. I will strictly follow the standard process for new drug development to advance its clinical trial stage. I understand that many readers may feel disappointed with current medical technologies. If you have confidence in the therapeutic effects of chlorine dioxide but are temporarily unable to use it due to legal restrictions, I suggest considering metformin as an alternative.

There are several reasons to consider metformin:

(1) Numerous studies and clinical practices have shown that metformin has similar mechanisms of action to chlorine dioxide, including eliminating abnormal cells and regulating immune response, possibly through the generation of ROS at the cellular level.

(2) Non-diabetic use of metformin falls within legal boundaries and carries no risk.

(3) Metformin has relatively few side effects, with occasional instances of diarrhea being the most common.

(4) In addition to its potential anti-cancer, anti-aging, anti-inflammatory, and weight loss effects, metformin can be taken long-term, unlike some targeted anti-cancer drugs that may develop resistance.

(5) Metformin is also cost-effective.

While I understand that some readers may be inclined to conduct personal experiments based on my recommendations, particularly following the MMS protocol, I must stress the importance of safety. I recommend considering the use of metformin as an adjunct therapy alongside chlorine dioxide (whether following the MMS protocol or my protocols) to provide comprehensive protection and potentially enhance the overall effectiveness of the treatment.

18.1 HAIR LOSS TREATMENT PROTOCOL

Eliminating Abnormal Cells+Promoting Tissue Regeneration

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18.2 ALOPECIA AREATA TREATMENT PROTOCOL

Eliminating Abnormal Cells+Regulating Immune Response+Promoting Tissue Regeneration

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18.3 ACNE TREATMENT PROTOCOL

Eliminating Abnormal Cells+ Promoting Tissue Regeneration +Regulating Immune Response

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18.4 DRY EYE SYNDROME TREATMENT PROTOCOL

Regulating Immune Response

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18.5 PHARYNGITIS TREATMENT PROTOCOL

Eliminating Abnormal Cells+Regulating Immune Response

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18.6 ECZEMA TREATMENT PROTOCOL

Eliminating Abnormal Cells+Regulating Immune Response+Promoting Tissue Regeneration

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18.7 PSORIASIS TREATMENT PROTOCOL

Eliminating Abnormal Cells+Regulating Immune Response+Promoting Tissue Regeneration

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18.8 VITILIGO TREATMENT PROTOCOL

Eliminating Abnormal Cells+Regulating Immune Response

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18.9 SKIN CARE PROTOCOL

Eliminating Abnormal Cells+ Promoting Tissue Regeneration

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18.10 RHINITIS TREATMENT PROTOCOL

Regulating Immune Response

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18.11 ARTHRITIS TREATMENT PROTOCOL

Eliminating Abnormal Cells+ Promoting Tissue Regeneration + Regulating Immune Response

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18.12 CANCER TREATMENT PROTOCOL

Eliminating Abnormal Cells+ Promoting Tissue Regeneration +Regulating Immune Response

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18.13 FAT REDUCTION PROTOCOL

Eliminating Abnormal Cells

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ABOUT THE AUTHOR

Xuewu Liu, a Chinese national, graduated from Nanjing University in 1998 with a Bachelor's degree in Atmospheric Physics and Atmospheric Environment from the Department of Atmospheric Science. He later obtained his Master's degree in Economics from the School of International Business at Nanjing University in 2001. Despite not having a background in biomedicine, Liu has a strong grasp of complex scientific concepts. Over the course of his career, he has worked in government departments, financial institutions, and private investment companies, demonstrating his deep scientific knowledge and innovative thinking in the fields of economics and business management.

Liu has conducted extensive self-experiments to showcase the remarkable therapeutic effects of chlorine dioxide. Since 2012, he has been at the forefront of advocating for the safe and effective use of chlorine dioxide in treating various diseases, making him the first person in the world to

systematically utilize chlorine dioxide for medical purposes. Drawing on his extensive research expertise and sophisticated scientific reasoning, Liu has uncovered and developed three significant physiological mechanisms of chlorine dioxide as well as multiple treatment protocols for a range of diseases.