

Historical Facts on Argentyn 23[®]: A Nutraceutical Silver Supplement with Lasting Purpose

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A Brief History

The sojourn of silver appears to have its origins with the discovery of the metal in the fourth millennium B.C. by the Chaldeans.¹ The pre-dynastic Egyptians began processing silver as a currency around 3500 B.C. Since the beginning of recorded history silver has been not only used as currency but became highly regarded as a premier preservative and immune tool.^{2, 3, 4} It has been known since 1000 B.C. that water remains contaminant free when stored in silver or copper vessels.⁵

The use of silver vessels to keep liquids pure longer has been known throughout history. Since ancient times and until the present, many countries, including Mexico, the world's major producer of silver, have continued to use silver to keep water and milk sweet.

In ancient Greece, Rome, Phoenicia, and Macedonia, silver was used extensively to help control immune challenges and spoilage^{6, 7}. For example, the Macedonians used silver plates as an effective topical dressing.⁸ Herodotus (440 B.C.) recorded that Cyrus the Great, King of Persia (550-529 B.C.; who established a board of health and a medical dispensary for his citizens), had water drawn from a favorite stream then "...very many four wheeled wagons drawn by mules carry it in silver vessels, following the King whithersoever he goes at any time"⁹. The King of Persia used flagons of silver to preserve the freshness of his water supply.^{10, 11} Accordingly, Alexander the Great (335 B.C.) was counseled by Aristotle to store Alexander's boiled water supplies in silver vessels ... during his military campaigns.¹² Hippocrates, the "Father of Medicine", also taught that silver aided in tissue repair. Around 400 B.C. he listed as a notable topical aid the flowers of silver by itself in the finest powder as a treatment modality for ulcers....¹³ Pliny The Elder, of Rome, furthermore gave high recommendations to silver as a most effective topical remedy.¹⁴ In 69 B.C. silver nitrate was described in the contemporary pharmacopoeia.¹⁵

Pliny, the Elder, in his great work, *Natural History*, (78 A.D.) reported in Book II, Section XXXV, that the slag of silver "... has healing properties as an ingredient in plasters, being extremely effective in causing wounds to close up..."¹⁶. In 131 A.D., the well-known healer Galen expressed disenchantment with the use of metal preparations,¹⁷ perhaps due to their crudeness. Yet the popularity of silver spread throughout the Middle-East from 702 A.D. through 980 A.D. where it was favorably looked upon for blood and breathe purification.¹⁸

It was the prominent physician Paracelsus (circa 1520 A.D.) who proclaimed the importance of silver to the pre-modern era. He extensively used silver for a wide-array of clinical situations. Later Caradanus, Pareus and Sala used silver nitrate to successfully intervene in various immune stresses.¹⁹

These crude and undesirable forms of silver were, however, reported by Sala to rarely cause a gray-blue skin discoloration due to overuse.²⁰ For example, it is widely thought that during the Middle-ages silver utensils and goblets contributed the bluish-hue to the skin tone of the upper-class that resulted in them being called "blue-bloods." Plausibly, then, the term "born with a silver spoon in his mouth" was coined for that reason. Some now attribute that metaphor to describing health, not wealth. The blue-bloods were sometimes alleged to having been favored with a measure of resistance from the rampant immune challenges found in middle-age (the "Dark Ages") Europe.

A few hundred years later in 1861, an Englishman Thomas Graham reported on a discovery that distinguished colloidal particles from other chemical compounds, such as salts and sugars.²¹ By taking a semi-permeable tissue membrane, he noted that the sugars and salts easily pass through, but colloidal particles are left behind. This was due to the fact that Graham was working with small metal particles which had combined with an organic gel, like gelatin or egg albumen. As a result, Graham

proclaimed that there were really “two distinct worlds of matter,” the theory which became the reality that this distinction now demonstrates many transitional stages, like Argentyn 23[®].

Most colloidal particles are attached to a larger molecule forming a gel, and this is accomplished by making it with chemical reactions. It turns out that silver colloids can be electrically created under water with alcohol, like xylitol. In 1898, G. Bredig was the first to make pure silver colloidal particles in water, with no other chemicals other than water.²² This experimentation by Bredig is the first of many steps for the production of Argentyn 23TM.

In this unique “in-between world,” the colloidal restrictions relating to its transition through membranes are eased, since there is no larger molecule actually attached to these tiny silver particles. Thus, with high tech, the silver particles can be made more stable with an even finer particulate than the older colloidal silver formulations of the past. The result is a naturally bioavailable silver nutrient that transcends the barriers of colloidal chemistry or other forms of colloidal silver. In fact, colloidal silver particles typically range from 50 to 260 angstroms^{23, 24} (a unit of measurement) in size, and have an absolute end at 10 angstroms (0.001 microns) by definition.²⁵ Argentyn 23TM has a proven silver particle size averaging 8 angstroms (0.0008 microns) or less, as revealed under a Transmission Electron Microscope.

What makes Argentyn 23[®] even more exceptional dates again back to Graham, and this is also another important step in the processing of Argentyn 23[®]. He went on to show that colloidal silver could be suspended in alcohol solutions and called “alcosols”.²⁶ What results is an unrestricted sub-colloidal silver particle that may easily enter into tissues where it is needed *before* it becomes attached to a larger molecule. This process considerably slows the actions of silver down.

(Silver Inst: In 1884 the German obstetrician, F. Crede, observing a relationship between the 20% to 79% of children in various institutions of the blind and the presence of maternal venereal disease, began the use of a 1 % silver nitrate solution dropped into the eyes of newborns. Following the introduction of this treatment, the incidence of *gonococcal ophthalmia neonatorum* dropped to about 0.2%. This prophylaxis became a state regulation in countries in Europe, North America, and elsewhere.²⁷) Silver, thus became widely accepted and the drug of choice for such treatment, perhaps used in the tens of millions just in America alone, to prevent blindness in newborns, as it still is today.^{28, 29}

Just prior to this time, a major discovery occurred that was to give lasting purpose and impart definitive meaning to the entire spectrum of silver based aids. That pivotal discovery was to become known as silver’s oligodynamic power.

Carl Nägeli (1893) first coined the term “oligodynamic effect” (from the Greek *oligos* = few, and *dynamis* = power) to best describe how extremely low concentrations of metal ion (e.g., silver and copper) that went beyond definitive chemical analysis ...exert potent and meaningful biological actions.^{30, 31} Webster’s Dictionary gives further definition to ol-i-go-dynamic as an adjective, originally formed from the German – *oligodynamisch*, which pertained only to very small quantities of silver.³² Hence, oligodynamic silver is low concentrations of silver ions.^{33, 34} Biologically meaningful actions of heavy metal salts are only obtained from high concentrations when taken internally, but at a cost. With many metal salts taken internally, this cost is a “caustic” one. This distinction underscores why heavy metal salts are considered metal poisons.³⁵ It is fair to state from these facts that in manufacturing, this means one of two things -- either (1) one makes only pure oligodynamic silver (very difficult), or (2) one provides large quantities of cheap silver compounds (not difficult). Some *active* silver ions break away to become useful, but this means that most of the vast amount of silver is simply dead weight.³⁶

During the last century, manufacturing methods (now obsolete) sought to commercially produce oligodynamic silver formulations in quantity. But such manufacturing methods were technologically handicapped to produce the high quality and purely *active* silver desired; very heavy

concentrations – some as high as 10,000 ppm became the norm. Some 96 different silver formulas were in use prior to 1939, as documented by The Council on Pharmacy and Chemistry of the American Medical Association.³⁷

Historical *In vitro* Studies

Clinical reports on silver medicinals were published in various medical journals worldwide at the start of the last century. Initially, the *Journal of the American Medical Association (JAMA)* took an antagonistic position. Within an eleven year period, a true revolution in medical practice with silver medicinals occurred that didn't subside until the U.S. government's purchase of the patent rights to penicillin (circa 1940). Throughout this time period (1920 through 1942) *JAMA* articles were replete with oral and intravenous clinical reports of the efficacy and side effects of silver medicinals.³⁸ *The Lancet* and the *British Medical Journal* published prominent research as well.^{39, 40}

Perhaps the first definitive attempt to comprehensively evaluate the efficacy and variety of silver medicinals was published by the Department of Pharmacology of the Medical School of Case Western Reserve University, Cleveland, circa 1923. This landmark study arguably established “silver nitrate” as the benchmark, in terms of efficacy, for all silver medicinals.⁴¹ The excitement of this published study unfortunately & simultaneously placed at risk subgroups of patients susceptible to symptoms of Argyria. Had the technology then existed to create “pure silver ion and water only oligodynamic Ag⁺ products” the array of such products would have revealed greater potency above that of silver nitrate. Argyria would be a consequence of particle size, the degree of inactive elemental silver and also a consequence of the substrate, whether made of a protein or salt. Such oligodynamic Ag⁺ products achieve their efficacy with several orders of magnitude less in silver quantity content. In other words, technology today can produce smaller quantities of silver that are vastly more potent than was ever historically possible. The result is a dramatic elongation of the Benefits vs. Safety, resulting in unprecedented safety, efficacy and dimension to protocol parameters.

For example, beginning in 1970, researchers at the University of Wisconsin, under contract from NASA to determine the biocidal effects of silver, determined that lethal effects of silver ions could be reliably reproduced at concentrations of only 250 ppb when exposed to infectious agents over 2 hours or less *in vitro*, or even of only 50 ppb over 4 hours or less.⁴² The laboratory-produced silver ions worked extremely well, although the extinction times were long, still, follow-on studies of silver medicinals by many investigators in ensuing years, as previously noted, failed to exert lethal effects upon antibiotic resistant infectious organisms. Then, as technology advanced, these highly resistant organisms were again found to succumb to the lethal effects of new, cutting edge silver medicinals.⁴³ Additionally, the extinction times dramatically lessened to *mere minutes* as compared previously to *hours*.⁴⁴

Historical *In vivo* Studies

During the height of its popularity (from 1900 through and beyond 1940), a fair estimate of humans given oral and intravenous silver medicinals worldwide would probably exceed 100 million. The enormity of the scale of its utilization defined and confirmed the use of silver medicinals as effective, even though it was well known in the laboratory to aid in the elimination of a wide array of immune risks.⁴⁵

One recent and noteworthy *in vivo* study published in the *Journal of Clinical Ultrasound* (2000) reported on a protocol involving puncture, aspiration, injection, and re-aspiration (PAIR) with silver nitrate directly into hepatic hydatid cysts with beneficial long-term results.⁴⁶ Other preliminary evidence *in vivo* suggests that both HCV and HIV,^{47, 48} other viral vectors,⁴⁹ as well as *in vitro* studies on herpes,⁵⁰ and the worst bacterial scourges (i.e., antibiotic resistant disease vectors) may become the aftermath of the past via the judicious and strategic use of state-of-the-art silver medicinals and delivery systems.^{51, 52, 53, 54, 55, 56, 57, 58}

At the present time, these laboratory and clinical studies concerning the efficacy of state-of-the-art oligodynamic Ag⁺ is just beginning, and given the high-tech formulated silver products like Argentyn 23[®], this promises to be an exciting time. Concerning inferior grade silver salt medicinals, or “large particle size (i.e., 0.1 microns or larger)” colloidal silver preparations, it may be said that unless educational initiatives or regulation standards are undertaken, history is apt to repeat itself; in a few short years, needlessly such inferior products created by opportunists may create a new wave of cases dealing with permanent skin discoloration. Argentyn 23[®]’s unique formulation helps set the standard to establish *both* a safe and efficacious standard.

The Fall of Silver and the Rise of Super-Germs

At the height of silver’s popularity, its demise occurred simultaneous to the invention of antibiotics since they so rapidly created a sensation within the public’s mind. In special ways the new antibiotics were more effective than the silver drugs then in use. They were cheaper -- and as antibiotics became widely regarded as miracle drugs, these factors combined to bolster the cascade of events of silver’s demise in the eye of the public. The exceptions to the rule were preparations of topical silver salves and neonatal eye drops. These salves advanced the science of “silver salt-derived” Ag⁺ delivery and effectiveness in the mid 1960’s.⁵⁹

However, major contributing factors several decades later have brought silver back to center stage. The medical world has discovered that there are three critical consequences to antibiotics: (1) they could not control viruses such as HIV or hepatitis, (2) overuse could lead to intestinal yeast overgrowth, and (3) imprudent antibiotic use created “super germs” that defied *all* antibiotics. In 1992, according to Newsweek, 13,000 hospital patients died from drug resistant infections.⁶⁰ A year later, this figure leaped to 70,000. This indeed became a major concern to health advocates and the public. In 1994, the Center for Disease Control viewed this problem as America’s number one health issue.⁶¹ Today, over 2 million Americans suffer from hospital based super germ infections.⁶² In fact, the industrial countries, such as Great Britain, are reporting an infection rate for super germs that now approaches 3.5 per 1,000 patients admitted to the hospital.⁶³ That equals 350 patients per 100,000 patients admitted! Simply stated, those numbers are at *epidemic levels*. (N.B.: An epidemic is generally considered to be anything over 80 victims/100,000 normal in a given population).

However, as germs began to find ways to resist antibiotic treatment, they appeared to develop the same ability to resist silver. Despite this first impression, to date, absolute microbial resistance to medicinal silver has not been scientifically established. Several studies indicated that some bacterial species have physiological mechanisms that circumnavigate silver’s toxicity.^{64, 65, 66, 67} Although it is clear that pathogens have mechanisms to survive exposure to silver, these mechanisms are limited when compared to higher life forms. Herein lay all the clues necessary to identify strategic silver therapeutics that pathogens are unlikely to survive.

The Wisdom of Silver Becomes Revisited

Fortunately, researchers were working on the next-generation of silver nutraceuticals, which were intriguing some of the best minds within the medical community. Dr. Harry Margraf of St. Louis stated that silver is the best all around tool for immune intervention we have.⁶⁸ Jim Powell, a medical writer for *Science Digest*, reported that a single antibiotic cannot kill more than seven different kinds of germs. Yet he goes on to suggest that next-generation silver formulations may offer effective broad-spectrum immune intervention for up to 650 known single-celled organisms that may over stress our immune system.⁶⁹

And so far, no lower life forms have proved totally resistant to silver. We now understand that it is likely that pathogens lack sufficient defense mechanisms to circumvent the toxic effects of silver

ions *when* oligodynamic silver is delivered in sufficient, physiologically compatible quantities.^a In fact, the “apparent” resistance of microbes to silver appears to be the result of an inadequate oligodynamic silver ion (Ag^+) particles, protocol or procedure. Reports that multiple-drug-resistant (MDR) pathogens (i.e., MRSA, *Acinetobacter* spp., etc.) were truly resistant to silver -- proved erroneous.⁷⁰ Grier stated, “Some so-called Ag^+ resistant microorganisms may result from an apparent neutralization of the metal’s inhibitory action or other assay artifacts. These include the presence of chelators such as serial amino acids, constituents of hard water, different buffers, light, incubation temperature, and particularly, soluble components of trypticase soy agar (TSA) and tryptose glucose extract agar (TGE).”⁷¹

Scientists Zhao and Stevens agreed with this good news. They commented that with the alarming emergence of antibiotic-resistance among lower life forms, silver is being re-discovered as a tireless warrior. It is now becoming apparent that all such organisms have failed to develop complete immunity to silver.⁷²

Then, during the mid 1970’s, several papers were published that utilized electrically activated silver probes as delivery systems for targeted oligodynamic Ag^+ strategies.⁷³ The interest in such strategies continues to grow to the present, with high efficacy being obtained for viral vectors such as HIV,⁷⁴ and resistant bone and dental infection.⁷⁵

Argentyn 23[®]: Active vs. Inactive Silver

Additionally, Natural-Immunogenics Corp. product is fundamentally 96% *active* silver, because we create it exclusively by an electrolytic process that makes our particles only when we provide elemental silver with a positive charge. Although fundamentally this type of process was first discovered in the late 1800’s, our method perfects this original process....particles average less than 8 angstroms each, and are nearly all net positively charged, thus rendering an incredibly dispersed oligodynamic silver. Our active silver ingredient is stable for over 3 years in the bottle. If it did not maintain its positive charge, our product could not maintain its dispersion in pure water; it would agglomerate together into larger, *inactive* silver particle clusters. This is why it easily provides all the benefits of the higher *inactive* silver products that only deliver small amounts of active silver.

Argentyn 23[®]’s Technology Serves as a Superior Support to Your Immune System

We additionally increase our product’s silver activity by way of our product’s attainment of an extremely high total surface area. In fact, for each cubic centimeter of elemental silver used, our manufacturing methods attain a total surface area of over 6 square kilometers.

The result is a product that achieves an activity factor for silver by way of:

1. the resulting surface area (SA) and adsorption (the pre-requisite to all absorption potential) attained for exposure *upon* biological milieus. Argentyn 23[®] SA, when calculated from an original source of a 99.98% cubic centimeter of pure silver, will attain from 6 to 60 square kilometers of surface!
2. an SA that achieves great orders of magnitude of total surface *energy* (SE - the key principle to a substance’s thermodynamic energetics),
3. an oligodynamic - positively charged - silver particle (ready for work),
4. a free radical-like energy effect benign to higher life forms, which is a phenomenological in determinant⁷⁶ (i.e., quantum in nature) in part because the associated Brownian movement that achieves great rapidity approximating an unprecedented Particle Diffusion Coefficient (PDC) of $10^{-5} \text{cm}^2/\text{second}$,⁷⁷ and additionally in part because

^a See the section – Historical *In vitro* Studies.

5. The absorption, penetration, and delivery of the active silver *into* biological milieus (i.e., intracellular, intra-nuclear?), where it may best serve useful immune functions by way of the SA, the SE and PDC.

Conclusions

With the arrival of high technology, highly educated mass consumers have pushed retailers to the limits of their knowledge, and beyond. The pursuit of this scientific perfection has created a commercially viable and safe oligodynamic silver alternative for the first time, this coincided with the inception of Natural-Immunogenics Corp. in 1999. Finally it has become possible to manufacture very high quality – and purely active – silver in the form of a hydrosol. The educated consumer is able to rediscover silver as a safe oligodynamic option. The result is the formation of an important marriage with the regulations established under the Dietary Supplement Health Education Act of 1994. DSHEA was the largest grass-roots effort ever orchestrated by the American public at large, and underscores both the importance and the demand that Americans place upon accessibility to health tools in general. It is exactly what the public clamors for, and it conforms to the safe yet beneficial standards associated with nutritional products and natural-complementary nutraceuticals. Natural-Immunogenics Corp. – The Leader in Silver Hydrosol Technology™, has arrived at the historical apex in silver's long journey to bring everlasting meaning and new purpose to silver, even as a dietary supplement. ♦

♦ These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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