In this issue:

Senolytics – how removing dead cells helps us
Controlling blood sugars – it’s not just for diabetics
Book reviews – some interesting reads
A natural antiviral – the story of 1st Line™
TESTIMONIALS

DR. AUBREY DE GREY Ph.D.

“IAS has shown great vision and leadership as an organization focused mainly on the provision of contemporary medical interventions against aging, and in also supporting the SENS Foundation efforts to hasten the development of much more powerful future interventions.”

NICHOLAS PERRICONE M.D.

“IAS is an outstanding resource for the finest, most up-to-date news and information on healthy aging. They also offer products of the highest integrity and efficacy. In fact, IAS is the world’s greatest source, (often the only source) for the most cutting-edge and advanced nutrients to ensure optimum health span and maximum life span.”

THIERRY HERTOGHE M.D.

“IAS have a history of making throughout the world crucial, but difficult to access medications available to patients. IAS is one of the pioneering societies in antiaging medicine that has helped this new medical speciality move forward.”

JONATHAN V. WRIGHT M.D.

“Every adult has the right to take care of his or her own personal health as he or she chooses. In the 20th and 21st centuries this universal human right has been nearly obliterated by an ocean of nanny state regulations and deliberate suppression of information by bureaucracies, with hidden and not-so hidden agendas. International Antiaging Systems is a beacon of useful health care information and a literal island of freedom of health care product choice in our otherwise unfree health care world.”

DR. WALTER PIERPAOLI

“I have known IAS for many years and they are a qualified group who provide for me, my family and my patients. Their skill and professional capacity has liberated me from all sorts of problems concerning the search for guaranteed and often rare supplements, or anything which is available but problematic to find. Their service goes far beyond duty and helps in many ways to maintain optimal health.”

FRANK SHALLENBERGER M.D.

“The tools that are available today to treat the aging process are truly amazing. Thanks to IAS the field of Anti-Aging medicine has expanded to the point that feeling and functioning 10-20 years younger is easily achievable. Their information and product services are regularly used by my patients.”
WELCOME

We named this issue ‘live and let die’ – not because we are fans of the James Bond films, but to focus attention onto senolytics; these are agents that help to remove senescent (dead) cells from within the body.

This lead article will introduce a hot topic that has a great deal of interest in it at present. It appears that many good things happen when the amounts of senescent cells are lowered.

Here you can get some details and learn about the current class-leading agents that are enabling this to happen now. Plus it’s not just about fruit-flies or worms, it’s humans too! In fact, a new trial was announced at the RAAD festival in October 2019 to use senolytic agents in patients and to measure the before and after aspects of aging- to note differences they make.

We hope to report on that ‘Vitality in Aging’ trial in the March 2020 issue of the Aging Matters™ magazine.

Also, in this issue, you will read about all kinds of agents that can help to control/ lower blood glucose levels. High blood sugar levels are a major issue for diabetics, (especially type-II) but they can also be a significant factor for aging individuals.

The dangers of high glucose are disease risk factors almost across the board. Naturally, one should eat less sugar and simple carbohydrates and ultimately get the body into a keto state. But some individuals struggle to get onto this path for all kinds of reasons, including the loss of insulin sensitivity to receptors. So here you can learn more about this important antiaging matter.

Furthermore, we have included some book reviews. We’ve described recent and even old books, plus a brand new one. Our goal is to highlight different subject matters to hopefully pique your interest. Since cold, dark winter nights are ahead for many of us, we look upon it as an opportunity to read and learn more.

Finally, we have an update on 1st Line™, the most unique anti-viral supplement that is made up of natural OSCN molecules- these are the ones found in tears, saliva and mother’s milk.

We thought it prudent to be aware of antivirals during the flu season.

Declaration: The Aging Matters™ magazine is intended for IAS private club members (and therefore is not intended for the public). It focuses on the latest international nutritional, hormonal and drug therapies to help combat the signs of aging. These signs include the physical, mental and internal changes consisting of the diseases and disorders such as cancer, arthritis and senile demetias etc. However, the main focus is upon the prevention of such aging diseases and disorders for the 'healthy-aging' individual.

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www.aging-matters.com

Phil Micans, MS, PharmB
Editor, Aging Matters™ Magazine

Ward Dean, M.D.
Medical Director

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COULD CRUSHED EGGSHELLS HELP TO REPAIR BONE DAMAGE?

Researches from the University of Massachusetts Lowell have led a new study to show how crushed eggshells could be the way forward in fixing bone damage.

Eggshells are made entirely of calcium carbonate, a substance that is crucial for maintaining bone health. For this reason, some people crush eggshells into a powder and use this as a natural calcium supplement for their bones.

WHAT IS CALCIUM & WHAT DOES IT DO?

Calcium is a mineral that is necessary for life. As well as building bones and keeping them healthy, calcium enables our blood to clot, our muscles to contract, and our heart to beat. About 99% of the calcium in our bodies is in our bones & teeth.

Every day we are losing calcium through our skin, nails, hair, sweat etc. Our bodies do not produce its own calcium, that is why it’s important to get enough calcium through the foods that we eat. When we don’t get enough calcium that the body needs, it is taken from our bones. Too often, bones get weak & easier to break. (Source: National Osteoporosis Foundation.)

THE STUDY

Researchers from the University of Massachusetts (UMass) Lowell have finely crushed eggshells to create a biomaterial that helps bones regenerate after having sustained damage.

In their study, assistant Professor Gulden Camci-Unal and her colleagues from UMass have used an innovative process to create a medium that can help scientists grow new bone tissue by using eggshells.

To date, they have conducted laboratory and in vivo experiments using a rat model to test their novel process. However, the scientists believe that in the near future their biomaterial could become available for use in humans receiving treatment for bone damage. The researchers innovative process involves adding finely crushed eggshells from chicken eggs to a hydrogel mixture. This allows them to form a frame in which new bone can form from bone cells.

Because the eggshells are made up of calcium, it allows the bone cells to both develop into bone tissue and harden faster. This could also speed up healing in the context of a bone graft, which is a type of surgery were specialists transplant new bone tissue at the site of a damaged bone to allow it to heal.

Although in this study the researchers tested the method in rats, they argue that it should also safely apply to humans.

In the case of testing this on humans, healthcare professionals would need to collect bone cells from the people that require this transplant in order to check that the tissue will match so that the body will not reject it.

“This is the first study that uses eggshell particles in a hydrogel matrix for bone repair” states Camci-Unal, she also explains that her and her team have begun the next steps towards bringing their findings to humans.

The researchers also explained that using eggshells to grow tissue for transplants would additionally encourage more sustainable living, since it could help reduce waste. In their paper the investigators wrote:

“Global waste of discarded eggshells typically amounts to millions of tons annually from household and commercial cooking. Innovative repurposing of eggshells can directly impact the economy and environment, while providing enhanced solutions to unmet clinical needs.”
Further reading:


Recent news headlines have brought hope to Multiple Sclerosis sufferers all over the world.

‘Diabetes drug could halt the progression of MS study suggests’

We’ve looked into the latest findings for MS to see what the experts have to say, because, if the specialists have found a process to reverse nerve damage it will be groundbreaking!

With over 100,000 MS sufferers in the UK, 3 times as many women than men, and, 14 people being diagnosed every day – the latest news will be music to their ears.

Professor Robin Franklin and his team at the Wellcome-MRC Cambridge Stem Cell Institute recently published research suggesting the drug metformin could hold the key to stopping the progression in MS. Metformin is a type 2 diabetes drug, it lowers blood sugar levels by improving the way our bodies react to insulin.

IT’S SIGNIFICANT, SPECTACULAR AND CRITICAL...

Of the findings, Professor Franklin said, “One of the most significant advances in myelin repair therapies there has ever been.” He added, “It’s utterly unambiguous and very spectacular.”

Nick Moberly, chief executive at the MS Society said:

“Research has got us to a critical point, and we can see a future where nobody needs to worry about Multiple Sclerosis getting worse. Not living in fear you’ll be reliant on a wheelchair or one day lose your independence entirely.”

METFORMIN COULD BE THE ANSWER FOR MS SUFFERERS...

To stop MS there needs to be a treatment to repair myelin, the fatty sheath that protects the nerves in the brain. MS is a condition that affects your brain and spinal cord when the fatty coating that protects your nerves (myelin) is damaged.

When a person has MS their immune system, which normally fights off infection mistakes myelin for a foreign body and attacks it. This damages the myeline and strips it off the nerve fibres either slightly or completely, leaving scars known as lesions or plaques.

MS causes a range of symptoms like blurred vision and problems with how you move and feel. There are four different types of MS – Relapsing and Remitting (RRMS), Secondary Progressive (SPMS), Primary Progressive (PPMS) and Progressive Relapsing (PRMS). RRMS make up around 85% of new cases.

Some types of MS are more severe than others and sadly, long-term the disease can become debilitating. It’s something that can be hard to live with for the sufferer, their friends and families.
REMYELINATION...

The recent study by Professor Franklin and his team, funded by the UK MS Society, revealed why cells lose their ability to regenerate myelin and how the process can be reversed. In our younger years, the brain has a natural ability to regenerate myelin. This involves special myelin making cells which are made from a type of stem cell called Oligodendrocyte Precursor Cells (OPCs). In MS and with age, myelin repairs stop working as well as it should do.

The study involved procedures that were performed on rats in compliance with the UK home office regulations. The rats were kept in normal lab conditions in a 12hr light/day cycle with access to food and water. The rats were housed in pairs or groups of up to 4.

To replicate that of a human with damaged myelin on the nerves into the brain the rats underwent surgery, the scientists stripped some of the myelin around the nerves in the brains of the rats.

After that, tests were then performed on the rats in two ways:
- Alternate day fasting (ADF) (6 months)
- Oral digestion of metformin (3 months)

In the case of the ADF treatment, there were positive results and with the metformin treatment, the rats made a near-complete recovery, both tests developing 'youthful' new cells, in turn, resulting in remyelination. For decades scientists have tried to find a way to encourage regrowth of myelin and they've done it in rats – now it’s time for human trials which will start in 2020.

The research notes were published in the Cell Stem Cell magazine and you can find out more here... insert: https://www.cell.com/cell-stem-cell/fulltext/S1934-5909(19)30350-9

About metformin, Professor Franklin said, 

“This is a drug that’s well-tolerated and widely available. There is every reason to believe that the effects that we have seen – which have been so spectacular – will translate into humans.”

Metformin is the fourth most prescribed medication in the US, not only as a diabetes treatment but as a second-line agent for infertility in those with polycystic ovary syndrome.

The product Met-Pro contains metformin and is taken to reduce cholesterol and blood sugar levels. Metformin has proven to be a ground-breaking drug that could change the lives of MS sufferers, MS is relentless, painful and disabling...

The prognosis looks good and by 2025 we could have a nerve repairing drug that will specifically halt the progression of MS in humans.

RESEARCH:

https://www.cell.com/cell-stem-cell/fulltext/S1934-5909(19)30350-9


https://www.mssociety.org.uk

https://www.dailymail.co.uk/health/article-7536823/Type-2-diabetes-drug-offer-hope-multiple-sclerosis-study-rats.html

https://www.stemcells.cam.ac.uk/

For more information about MetPRO head over to www.antiaging-systems.com
Further reading:


TESTOSTERONE MAY IMPROVE WOMEN’S SEX LIVES AFTER MENOPAUSE

A wide analysis of 36 trails discovered that testosterone may have positive effects on sexual function and well-being in postmenopausal women.

This study was published in the Lancet Diabetes & Endocrinology, included controlled trials of testosterone treatment that lasted for 12 weeks.

The research team analysed 46 reports of 36 trials that had included 8,480 candidates.

The researchers concluded that the sexual health of postmenopausal women could benefit significantly from testosterone treatment.

TESTOSTERONE IS IMPORTANT FOR WOMEN TOO.

Testosterone is often referred to as ‘the male hormone’ but it is also the primary sex hormone of women. Testosterone is produced by the ovaries and the adrenal glands; the ovaries also produce testosterone for many years after the menopause. Consequently, women who have their ovaries removed are at risk of a testosterone deficiency and the side effects that come with it.

WHAT ARE THE SYMPTOMS OF LOW TESTOSTERONE IN WOMEN?

- Fatigue
- Disturbed sleep
- Decreased sexual satisfaction
- Low sex drive/ Libido
- Weight gain
- Fertility issues

The researchers looked at how the treatments affected sexual function, as well as several other health markers, such as cardiovascular cognitive and musculoskeletal health. Additionally, they also looked at how testosterone treatment impacted mood, breast density and excess hair growth.

Researchers noted that there were consistent benefits to the participants sexual function.

Senior study author Prof. Susan Davis, of Monash University, in Melbourne Australia said, “The beneficial effects for postmenopausal women shown in our study extend beyond simply increasing the number of times a month they have sex. Some women who have regular sexual encounters report dissatisfaction with their sexual function, so increasing their frequency of a positive sexual experience from never or occasionally to once or twice a month can improve self-image and reduce sexual concerns- and may improve overall well-being.”

The researchers concluded that the candidates have experienced no serious side effects. However, it is an area that needs further investigation and custom formulations are necessary for the women who could potentially benefit.

“Considering the benefits, we found for women’s sex lives and personal well-being, new guidelines and new formulations are urgently needed”

– prof. Susan Davis.
Care to wait ten years for commercially available all-body senolytics? Beware! When it arrives, it may be too late! As cells grow older and/or are damaged, they can enter into the state of senescence, from which toxins are spewed.

These toxins can drag other cells into the same dilemma. For those who study the scientific literature, the current clear option is to take a measured dose of the drug Dasatinib + the supplement Quercetin. According to recent research—when taken together—D + Q synergize their senolytic effects. Now is the time to get rid of your senescence!

**DRUGS AND PLANTS MEETING**

Dasatinib is a chemotherapeutic drug and is a plant flavonoid. Dasatinib is a senolytic that extends life by a notch. However, when taken together in clinical trials, the drug cocktail (D + Q) was shown to extend the life of lab mice by 36 percent. If human life could be extended proportionately as much, you could lengthen it long enough to arrive in the future!

It has been said that if we want to live a long time, we need something to help us now. Senolytics such as D + Q could prove necessary for that goal.

Senescent cells no longer divide or support the tissues and organs of which they are part. Senolytics target cellular senescence, a process in which damaged cells, rather than dying, persist and become toxic to cells around them. Instead, they secrete a range of harmful inflammatory chemical signals, which are collectively known as the senescence-associated secretory phenotype (SASP).

**CORRECT ANNUAL DOSE**

The Dasatinib + Quercetin treatment was new for 2018 with senolytic reviewers working out what they believe is the correct twice-a-year dosage based on how much you weigh. Furthermore, others who want to aggressively adopt the latest antiaging treatment can pay up to several thousands of dollars to a compounding pharmacy to provide Dasatinib (more on this later).

Quercetin is found in Kale, Tomatoes, Broccoli, Raw asparagus, Capers, and Raw red onions; it's cheap!

**Senolytics Are as Good as Caloric Restriction**

The effect of D + Q seems to have the same amount of antiaging benefits as calorie restriction. Supplementing with D + Q can promote the selective elimination of senescent cells. Before—when younger and healthier—these cells were the building blocks of life. But once senescence is stopped, there is a significant decrease in the secretion of frailty-related pro-inflammatory cytokines of human adipose tissue. This is highly desirable. D + Q are one example of a new class of drugs/supplements called senolytics, which can prevent cells from becoming senescent.

Senescence occurs when certain cells cease to divide, usually after 50 divisions. This phenomenon is known as “replicative senescence,” or the Hayflick limit.

Senolytics target cellular senescence, a process in which damaged cells, rather than dying, persist and become toxic to cells around them. These cells improve physical function and increase lifespan in old age.

**HIGH DOSE SIDE EFFECTS**

Dasatinib, sold under the brand name Sprycel®, is a targeted therapy used to treat certain cases of chronic myelogenous leukemia and acute lymphoblastic leukemia.
leukemia. Common side effects include low white blood cells, low blood platelets, anemia, swelling, rash, and diarrhea, when taken orally and chronically on a daily or continuous basis. But generally, these are the consequence of unmanageably high amounts. Cellular senescence is one phenomenon by which normal cells cease to divide. Also known as biological aging, this is represented by the gradual deterioration of functional characteristics. The word senescence can refer either to cellular senescence or to senescence of the whole organism.

Cellular senescence is one of the aging processes that makes up the hallmarks of aging. As cells grow older or are damaged, they can enter a state of senescence. They then dispose of themselves with a self-destruct program called apoptosis.

This is a natural safety mechanism that fights cancer and promotes tissue repair. Senescent cells no longer fulfill their roles nor support the tissues which they are part. Instead they produce SASP (see above). The SASP promotes cellular inflammation, blocks cellular processes, and leads to age-related diseases. Additionally, SASP also encourage nearby cells to become senescent, compounding the problem.

NORMALLY, CELLS ARE DESTROYED BY APOPTOSIS

Normally, cells are destroyed by apoptosis and are cleared away by the immune system. However, as some cells evade apoptosis and the immune system, and the immune system fails with age, they accumulate. Therapies that eliminate senescent cells are called senolytics. In mice, senolytics have been shown to increase lifespan and ameliorate symptoms of age-related diseases. It may also be possible to restore a more youthful immune system, thus deleting senescent cells.

Organismal senescence involves an increase in death rates and/or a decrease in fecundity with increasing age, at least in the later part of an organism’s life cycle. But with senolytics, this is significantly reduced.

LONGEVITY ESCAPE VELOCITY

Only last July, the world awoke to news from the Mayo Clinic that many age-related afflictions can be reversed by eliminating senescent cells from old mice by using D
In addition to regaining aspects of youthful health, the old mice whose senescent cells were selectively removed lived 36% longer. If this is translated to humans, it could provide just what is needed to reach the next breakthrough. One of these is called longevity escape velocity, this is when your longevity is expanded more than one year for each year you live. The scientists found that D + Q could prevent cell damage, delay physical dysfunction, and extend lifespan in naturally aging mice.

Scientists had previously demonstrated that the combination of the chemotherapeutic drug Dasatinib and the flavonoid Quercetin is a potent senolytic improving numerous age-related conditions including frailty, osteoporosis, and cardiovascular disease.

**THE END OF LIFE CAN BE DELAYED**

Senescence is the inevitable fate of all multicellular organisms with germ-soma separation, but it can be delayed. The discovery, in 1934, that calorie restriction can extend lifespan by 50% in rats, and the existence of species having negligible senescence and potentially immortal organisms such as Hydra, have motivated research into delaying senescence and thus age-related diseases. Rare human mutations can cause accelerated aging diseases.

**INTERMITTENT ORAL ADMINISTRATION**

Intermittent oral administration of senolytics to both senescent cell-transplanted young mice and naturally aged mice alleviated physical dysfunction and increased post-treatment survival by 36% while reducing mortality hazard to 65%.

The Xu M, et al, study (2018) provides proof-of-concept evidence that senescent cells can cause physical dysfunction and decreased survival even in young mice, while senolytics can enhance remaining health- and lifespan in old mice. 1 The simplest human trial involves the FDA-approved drug Dasatinib that demonstrated profound age-reversal effects in a mouse study published in 2015.

**THE DANGERS OF USING DASATINIB**

Are there any dangers to senolytics? Once again, only when taken in large or continuous amounts. And for people with osteoarthritis; it works, and the concept has been proven! Taken once for three days, and then repeated for a total of three weeks (9 servings), along with Quercetin seems to work well.

**HOW ABOUT FISETIN?**

The Mayo group had previously tested Fisetin and found it effective in killing some kinds of human senescent cells but not others. In previous tests, Fisetin was found to be effective in senescent fat cells (preadipocyte, white adipose tissue), and that is where it was primarily tested in the new studies. “It is exciting to see animal data arrive for some of the potentially senolytic compounds that may turn out to destroy enough senescent cells in mammals to be worth using as first generation rejuvenation therapies.”

**CLEARING ZOMBIE CELLS**

A combination of Dasatinib and the common supplement Quercetin was found to be synergistic in removing senescence rogue cells with a tremendous impact on quality of life and the burden of age-related chronic diseases. Dasatinib + Quercetin clear senescent (“zombie”) cells, the accumulation of which are one of the key ways in which we age and eventually die ...

In a first-in-humans open-label pilot supports study feasibility and provides initial evidence that senolytics may alleviate physical dysfunction in idiopathic pulmonary fibrosis (IPF), warranting evaluation of D + Q in larger randomized controlled trials for senescence-related diseases.

**A NEW THERAPEUTIC AVENUE FOR TREATING NEUROPSYCHIATRIC DISORDERS**

This study provides proof-of-concept evidence that senescent cells are major contributors to obesity-induced anxiety and that senolytics are a potential new therapeutic avenue for treating neuropsychiatric disorders.

The hypothesis-driven, bioinformatics-based approach we used to discover that Dasatinib + Quercetin are senolytic can be extended to increase the repertoire of senolytic drugs, including additional cell type-specific senolytic agents.
RODENT STUDY SHOWS WHAT SENOLYTICS D + Q CAN DO:
- Improve frailty symptoms (gait, grip strength)
- Enhance hair color appearance
- Improve cardiac/arterial function
- Reduce tremors and urinary incontinence
- Decrease osteoporosis
- Increase exercise endurance
- Improve kidney/liver age scores
- Extend healthy lifespan

TAKING CARE OF ZOMBIE CELLS

D + Q can clear senescent (aka “zombie”) cells, which are one of the key ways in which we age and eventually die. They are called zombie cells because they wander aimlessly, as if they have no self-directed.

By reenergizing cells using metformin and other AMPK activators to remove waste and suppress fat storage/excess cell proliferation and then NAD+ to repair broken DNA, the body may be more primed for senolytic therapy using D + Q.

REJUVENATED PROTEIN GDF-11

Removal of accumulated senescent cells is critical for systemic rejuvenation. Senescent cells secrete protein-degrading enzymes and generate chronic inflammation, both of which can neutralize the beneficial effects of stem cell replacement and/or young plasma that contain a myriad of rejuvenating proteins like GDF-11.

INITIALLY IT WOULD BE: FOSSEL DISAGREES

Not all observers agree with Dr. Michael Fossel, the telomerase expert, telling us in a recent interview, that the senolytic approach is to remove those ten percent of the cells that are causing damage. However, the remaining 90 percent must divide to make up for the missing cells, which means that you’ve just accelerated senescence in the remaining cells.

So, the next year, you must kill another 10 percent, and every time you do that, you’re increasing the rate of senescence of the remaining percentage of cells.

If you look at graphs of the published data you find that, initially, there’s a little improvement in function, and then the vector goes down at a much steeper rate than when you don’t do anything at all. Does Fossel have a point here or do you think he’s being too pessimistic? Can stem cells fill in the gaps (literally) and replace the killed off zombie cells?

Fortunately, senolytics are tissue-specific and only kill some types of senescent cells, which may make them safer. The term “senolytics” refers to compounds that selectively induce cell death in senescent cells.

Senescent cells are cells whose metabolism has gone awry for one reason or another, often due to DNA damage. The metabolism of these cells involves secretion of inflammatory molecules. These cells do not function and divide properly, and are considered by some researchers to contribute to age-related inflammation, increased cancer risk, and possibly a shortened lifespan.

One remarkable study published in 2015 reported that Dasatinib + Quercetin were effective senolytics, selectively eliminating different types of senescent cells in mice. The term “senolytics” refers to compounds that selectively induce cell death in senescent cells.

Senescent cells are cells’ whose metabolism has gone awry for one reason or another, often due to DNA damage. The metabolism of these cells involves secretion of inflammatory molecules. These cells do not function and divide properly and are considered by some researchers to contribute to age-related inflammation, increased cancer risk, and possibly a shortened lifespan.

One remarkable study published in 2015 reported that the chemotherapy agent dasatinib, and the plant flavonoid quercetin, were effective senolytics, selectively eliminating different types of senescent cells in mice.

SENOLYTICS:
Removing senescent cells
new interventions improve life extension’

As presented by Bill Faloon at RAAD, October 2019 in relation to the Vitality in Aging trial www.age-reversal.net
I became curious as to just how it was determined that the combination of Dasatinib + Quercetin in a 1:10 combination was an effective senolytic treatment. There are very many compounds out there, and it was difficult for me to imagine how this combination could emerge from that vast range of possibilities. Therefore, I tracked down the original source of the idea as a reference in a Kirkland paper. The key paper was published in 2015 in the journal Aging, entitled “The Achilles’ heel of senescent cells: from transcriptome to senolytic drugs.”

The authors noted that senolytic cells were somehow avoiding the natural process of apoptosis that should have cleared them. When they were eliminated at all, it was done by the immune system rather than the processes of apoptosis or necrosis. They hypothesized that senescent cells are using the same pathways employed by cancer cells to block the apoptosis process. Therefore, they suggested that a drug that prevents apoptosis blockage should clear senescent cells.

**The researchers determined that a 1:10 D + Q combination was more effective than either drug individually.**

Scientists tested 46 different candidate compounds on cell cultures of human senescent cells and found that Dasatinib and Quercetin showed promise in clearing the senescent cell targets.

**SERVING SIZE: 3 DAYS, 3 WEEKS (BASED ON WEIGHT)**

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Further, they found that the actions of the drugs were somewhat complementary, with Dasatinib being particularly effective on senescent pre-adipocyte cells (fat cells) and Quercetin being particularly effective on senescent endothelial cells (blood-vessel lining cells).

Moreover, the researchers determined that a 1:10 D + Q combination was more effective than either drug individually. They then tested this combination on mice and found very positive results in extending health spans.

Again, those of us looking for an edge to step further into our future may find it in senolytics. If it increases our lives by 36% that my enable us to live long enough to live forever.

**REJUVENATE YOUTH AND HEALTH NOW**

If you don’t treat aging you inevitably become frail, which is the hallmark of aging diseases. All the other aging diseases including those affecting your cardiovascular system and brain, eventually lead to death. Thus, we require rejuvenation biotechnology to reverse the aging processes and thereby restore youth and health.

Anti-aging products that purport to “rejuvenate” the body but do not actually address any of these hallmarks and therefore, cannot affect the root causes of age-related disease.

**MORE AFFORDABLE**

Looking more closely at senolytics, you and many other commentators are excited about the results in model animals and early human results, particularly for the D + Q combo approach, which you describe as being much more affordable now than was the case before, when a single service could be thousands of dollars. But now it can be taken down considerably.

**ADVANCED MEDICAL TECHNOLOGY**

Rejuvenation biotechnology is advanced medical technology that directly addresses any of the various aging processes in order to restore tissue and organ function to a more youthful state, thereby ameliorating, delaying, or preventing age-related diseases.

Ultimately, the goal of rejuvenation biotechnology is to change chronologically old and chronologically young people, at every physical level, indistinguishable from one another.
However, no single rejuvenation therapy will completely restore someone to a youthful state. That’s because the causes of aging are so broad and interlinked, rejuvenation biotechnology must be broad and comprehensive to match.

**ELIMINATING HARMFUL SENESCENT CELLS**

For example, senolytics are rejuvenative because they eliminate harmful senescent cells, which accumulate with age and are one of the hallmarks of aging. However, because types of senescent cells differ from one another, a comprehensive suite of senolytic therapies is required to directly address this hallmark through destroying these cells.

Stem cell therapies are rejuvenative because they address stem cell exhaustion, restoring the body’s youthful ability to repair tissues. However, because the body requires many types of stem cells for long-term function, each stem cell niche must be replenished.

**CHANGING OUR VIEW OF AGE-RELATED DISEASES**

There are potentially huge changes coming to medicine which will change how we regard age-related diseases in the next few decades. With these changes comes the potential for people to live longer and healthier lives thanks to the development of new therapies.

New therapies can directly target the various aging processes in order to delay, prevent, or even reverse age-related diseases.

References


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*these tablets can be broken in half for 15 mg or quarters for 7.5 mg as required.

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Atlas of Endocrinology

by Dr. Thierry Hertoghe

Long before there were blood tests, doctors relied on asking their patients’ questions followed by a thorough physical examination. Much of the latter has been forsaken for reliance on bloodwork etc. Dr. Thierry Hertoghe is an extraordinary endocrinologist as he comes from a long line of hormone masters. His father and his grandfather and his great grandfather were all in the same field.

This book shows photos and figures for all manner of body changes that can be expected to take place in patients if they are too low (hypo) or too high (hyper) in numerous hormones. It can be used as a guide to assess hormone levels and management.

The hormones include: Aldosterone, Calcitonin, Cortisol, DHEA, Estrogen (women), glucocorticoids, Growth hormone, IGF-1 (adults), Insulin, Melatonin, MSH, Oxytocin, Parathormone, Pregnenolone, Progesterone (men), Progesterone (women), Testosterone (men), Testosterone (women), Thyroid Hormones, Vasopressin.

We know of nothing else like it; we know that Dr. Hertoghe’s books are expensive, but they are high status reference materials for those who want to specialise.

328 pages $300.00 (it is accompanied by a DVD)

Age

by Professor Suresh Rattan

This short and succinct book has been written by one of the world’s leading gerontologists based in Aarhus University in Denmark.
Professor Suresh Rattan researches the biological mechanisms of aging and as he turned 60, he pondered the meaning of the age ‘number’ and how we ‘experience’ our different ages. As he says; “everything in the Universe has an age, how we interpret it is down to our own psychological interpretations.”

This thought-provoking book will make you question many aspects of the impact of aging on personal, family, society and the environment, maybe even the wider implications for the future of the human species.

60 pages $9.00

A new way to age
by Suzanne Somers

Suzanne Somers is a leading celebrity who advocates and practices antiaging medicine. In her latest book (out January 2020), Suzanne says; “Most of us are far too comfortable with the present paradigm of aging, which normalizes pills, nursing homes, and the big three- heart disease, cancer and Alzheimer’s disease. But you don’t have to accept this fate.”

Now there’s a new way to grow older—with vibrancy, freedom, confidence, and a rocking libido. In her latest guide she discusses nutritional and mineral deficiencies; detoxifying; pain management with non-THC cannabis instead of harmful opioids; and bioidentical hormones including TRH and melatonin and even peptides.

496 pages $28.00

Eyesight Saviors
by Dr. Marios Kyriazis

Eyesight is a top priority for most of us. After all, when we feel it is failing us, we don’t wait long to do something about it. There are numerous kinds of eyesight difficulties that can inflict themselves on us in later life, these include cataract, macular degeneration, glaucoma and others.

In his latest book, Dr. Marios Kyriazis highlights the natural agents such as aminoacids, peptides, minerals and vitamins that can assist us, to support, slow and help to maintain good eyesight.

Dr. Kyrijazis even highlights some clinical trials that have proven that conditions such as cataract and age-related macular degeneration, (both dry and wet forms) can even be reversed.

58 pages $15.00
Juvenescence

by Jim Mellon

Jim Mellon is a British billionaire who has taken the lead in driving investment into the field of longevity medicine. His interestingly titled book is basically designed to drive interest into this new paradigm, one that he describes as; “the biggest cash fountain ever.” He believes that today’s investors will reap greater rewards than the early investors of Microsoft, Google or Apple etc.

This well laid out and detailed book gives various examples of the kinds of biotech technologies that could perform this task of longer and healthier lives. It is apparent that a great deal of research and collation must have taken place, since even rare items are mentioned; for example, the free radical scavenger NDGA.

Overall, one must view this epistle as a great introduction to the field, one that explores the monetary value attached and therefore it is of interest to potential investors. Perhaps this is stating the obvious since the subtitle is: investing in the age of longevity!

250 pages $22.00

Life Extension

by Durk Pearson & Sandy Shaw

This book was first published in 1983, so you may ask yourself why is it here? The answer is simple, it was the first concise publication that introduced the concept that aging, and health could be ‘managed’ and it even suggested that lifespan could be extended.

The authors are a couple called Durk Pearson and Sandy Shaw and they became overnight celebrities as the book stayed on the New York best-sellers list for a long time. Given it is quite technical this was extraordinary, but it helped to galvanise an industry and many organisations owe their foundation to it. If you don’t know it, then you should; maybe not everything in it is accurate now and some has been superseded, but there is still much to be thankful for and as all copies are second hand it is very cheap.

858 pages $5.00

Stay 40

by Dr. Richard Lippman

Dr. Richard Lippman has been nominated for the Nobel Prize in Medicine for his work in measuring free radicals in vivo; in other words, inside the human body. He showed that free radicals must be neutralised from the top-down to be most effective. His work led him to create a unique multi-ingredient supplement called ACF228®. Dr. Lippman describes this research in this book and highlights the damage of too much aerobic exercise!

But there is a considerable amount more since here Dr. Lippman is an advocate of antiaging medicine and practices it himself. He describes numerous biochemical aging issues and then proposes three different approaches to each of them, to nullify their actions based on cost and convenience. We’ve not seen that before and we like the concept.

268 pages $30.00
The peptide bioregulator revolution

by Dr. Marios Kyriazis

Dr. Marios Kyriazis is the first western physician to document, for the public, the massive amount of research that has been published in Russia about the role of short-chain peptide bioregulators.

These varied specialist peptides are found in different food groups and they act as gene switches. This finding has enormous implications for precision medicine, since acting upon individual genes can improve many aspects of health and aging. The book highlights all 21 peptides whose data has been released to date. It is written in a clear and concise style that virtually everyone can understand.

Peptides are becoming more popular by the day, avail yourself of the opportunity to stay up to date with ‘the peptide bioregulator revolution.’

58 pages $15.00

Note: The US$ prices reflect the typical Amazon price, but they might be in paperback, or on Kindle etc., at cheaper rates.
The incidence of high blood sugar has been escalating at an alarming rate: more than nine percent of Americans currently suffer from type-2 diabetes, (1) 34 percent are on the verge of developing the disease with a condition known as pre-diabetes, (1) and another sizable percentage has blood sugar levels that are lower than the pre-diabetes range, but still higher than optimal – that means the majority of Americans are unable to maintain their blood glucose within a healthy range.

The incidence of pre-diabetes and diabetes is similar in the UK (2) and other countries, indicating that this is a global health crisis. Also startling is that many are unaware of their hyperglycemic status: about a quarter of diabetics (1) and many pre-diabetics are undiagnosed, and even those with ideal fasting glucose levels may experience dangerous blood sugar fluctuations throughout the day.

The consequences of excess sugar in the bloodstream are dire: increased risk of heart attack, stroke, kidney disease, vision loss, and amputations, not to mention accelerated aging. Everyone should be concerned about elevated blood sugar, even if your doctor tells you your fasting glucose is "normal." Fortunately, there are steps you can take to lower the risk of glucose-related degenerative diseases through a combination of lifestyle changes and targeted supplements like BloodSugar-Pro™, an innovative formulation of ten traditional Ayurvedic medicinal herbs fortified with GCB70® (green coffee bean extract).

WHAT IS DIABETES?

Diabetes is a condition characterized by high levels of glucose (a type of sugar) in the bloodstream. (Note: The terms “glucose” and “sugar” are used interchangeably in this article.) The most common form is type-2 diabetes, which accounts for about 90 percent of cases (with the remainder due to type-1 diabetes, an autoimmune disease). (3) Type-2 diabetes predominantly results from the failure of tissues to either synthesize or respond effectively to insulin, a hormone produced in the pancreas that enables glucose to enter cells, where it is used as fuel to create energy. Ideally, a relatively low level of insulin can efficiently process glucose, but in diabetics, the activity or sensitivity of insulin is impaired (in a process called "insulin resistance") due to faulty cell signaling, which results in a buildup of glucose in the bloodstream, prompting the pancreas to pump out higher and higher levels of the hormone to shuttle sugar into cells. The pancreas can’t maintain this increased workload indefinitely, eventually causing blood sugar to rise into the pre-diabetic range (pre-diabetes is an interim step before full-blown diabetes) and ultimately the diabetic range. The major contributors to the dramatic increase in diabetes cases over the past couple of decades are higher rates of obesity due to larger portion sizes, sugary beverages, and lack of exercise. Age is also a factor.
CONVENTIONAL MEDICINE MISSES MANY CASES OF HIGH BLOOD SUGAR, PUTTING PATIENTS AT RISK

Diabetes and pre-diabetes are typically diagnosed with blood tests that measure fasting glucose (after an overnight fast of eight hours or more) or hemoglobin A1c (glycated hemoglobin, which reflects an average blood sugar value over the past two to three months), usually according to these reference ranges:

<table>
<thead>
<tr>
<th>Level</th>
<th>Fasting Blood Glucose</th>
<th>Hemoglobin A1c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>below 100 mg/dL</td>
<td>below 5.7%</td>
</tr>
<tr>
<td>Prediabetes</td>
<td>100-125 mg/dL</td>
<td>5.7% - 6.4%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>126 mg/dL and higher</td>
<td>6.5% and higher</td>
</tr>
</tbody>
</table>

However, there are two factors commonly overlooked by mainstream doctors. The first is that the cut-off for normal fasting blood glucose (100 mg/dL) is set too high, and that disease risk increases with levels above 75-85 mg/dL, not 100 mg/dL. For example, in a study evaluating the effect of blood glucose on disease risk in 2,000 nondiabetic men (40-59 years old) over 22 years, researchers found that those with levels greater than 85 mg/dL had a significantly higher mortality rate from cardiovascular disease compared with men with lower levels. The study concluded that “Fasting blood glucose values in the upper normal range [i.e., 86-100 mg/dL] appears to be an important independent predictor of cardiovascular death in nondiabetic apparently healthy middle-aged men.” (4) Similarly, a meta-analysis (a statistical analysis of results of several related studies) of 20 studies on the association between blood glucose and cardiovascular disease in almost 100,000 non-diabetics (mostly men) over a 12-year period found that cardiovascular risk increases progressively as blood glucose exceeds 75 mg/dL. (5) The sobering conclusions of these studies point to the fact that normal fasting blood glucose should be re-defined as below 86 mg/dL (which would also lower the limits for pre-diabetes and diabetes). It should also be mentioned that fasting glucose in the high normal range is a risk factor for other degenerative conditions besides cardiovascular disease, including full-scale diabetes. Consider that each milligram per deciliter increase in blood glucose increases diabetes risk by six percent even within the range currently defined as normal. (6) So even if your doctor tells you that your fasting glucose is “normal,” you may still be at risk of degenerative diseases if it exceeds 75-85 mg/dL.

The second overlooked danger, even in those with optimal fasting glucose below 86 mg/dL, stems from after-meal (“post-prandial”) peaks in blood sugar that can last several hours after eating. According to one study, even non-diabetics spend much of the day with glucose levels in the pre-diabetic range. (7) These post-prandial fluctuations raise the risk of cardiovascular disease in patients with or without diabetes. (8,9) It’s important to recognize that both elevated fasting glucose and glucose spikes after meals contribute to the incidence of degenerative diseases. (10) Note that the HgA1c test, one of the diagnostic tests for diabetes, is an average indication of glycemic control over the past two to three months, and would reflect to some extent blood sugar fluctuations throughout the day, including post-prandial responses. But if your doctor only tests your fasting glucose, after-meal sugar surges will not be detected, increasing your disease risk. Again, curbing post-meal glucose spikes, even in non-diabetics, is as important as controlling fasting blood glucose.

WHAT CAN WE DO ABOUT IT?

We must all take high blood sugar seriously, whether diagnosed with diabetes or prediabetes, or even in cases of normal blood test results. Inadequate diagnostic limits for fasting glucose coupled with post-prandial glucose elevations that occur repeatedly throughout the day and reach hyperglycemic levels put many more at risk than currently recognized by conventional medicine. Each milligram per deciliter increase in blood glucose raises the risk of cardiovascular disease, cancer, Alzheimer’s and dementia, kidney disease, neuropathy, retinal damage, foot and leg amputations, and shortened lifespan. Thankfully, there is something we can do about it – blood glucose can be successfully controlled with a program of lifestyle modifications and research-verified supplements (and drugs when necessary). BloodSugar-Pro™ is an innovative product formulated with 10 traditional Ayurvedic medicinal plants further enriched with GCB70 (green coffee bean extract). These ingredients act by complementary mechanisms to normalize several indicators of glycemic control such
as fasting and post-prandial glucose levels, hemoglobin A1c, insulin secretion, and insulin sensitivity.

ANTI-DIABETIC EFFECTS OF TRADITIONAL AYURVEDIC HERBS BACKED UP BY MODERN RESEARCH

Ayurveda, the Indian system of medicine based on natural therapies and practices to restore balance in the body, is one of the world’s oldest systems to have documented the diagnosis and treatment of diabetes. Since ancient times, Ayurvedic practitioners have had at their disposal a natural pharmacy consisting of thousands of medicinal plants to treat various ailments and diseases, including diabetes. Studies performed over the past two to three decades have indeed shown that many of these time-tested plants contain pharmacologically active constituents that when used singly or in combination are effective in preventing and treating high blood sugar and its complications. In fact, the focus of research into potential diabetes treatments has shifted from synthetic drugs to bioactive compounds derived from natural sources. Herbal therapies provide an effective, safe, and cost-effective alternative to conventional drugs (without the need for a prescription).

BloodSugar-Pro™ contains these 10 Ayurvedic medicinal plants:

1. Karela or Bitter Melon (Momordica charantia)
2. Jambubae (Eugenia jambolana)
3. Kariyatu or Indian gentian (Swertia chirata)
4. Methi or Fenugreek (Trigonella foenum-graecum)
5. Neempan (Melia azedarach)
6. Gudmaar (Gymnema sylvestre)
7. Amla fruit or Indian gooseberry (Emblica officinalis)
8. Galo (Tinospora cordifolia)
9. Haldi or Turmeric (Curcuma longa)
10. Kutaki (Picrorhiza kurroa)

Each plant is listed on Pub Med (the "Medline" database of references and abstracts on medical research) and has undergone scientific studies that demonstrate its anti-diabetic activity. (3;11-33) When used in combination, as in BloodSugar-Pro™, these multiple therapeutic agents exert a synergistic glucose-lowering effect. And because of the increased overall potency of the mixture, each herb can be used at a lower dose, reducing any possibility of minor side effects. We don’t have the space to examine all 10 herbs, so let’s explore
the highlights of studies on a few of the most well-known:

- **Curcumin**, a principal component of turmeric (derived from underground stems of curcuma longa), is a popular spice and dietary supplement that exhibits antioxidant, anti-inflammatory, anti-cancer, and anti-diabetic activities. (11) A recent meta-analysis of seven trials found that curcumin significantly decreased fasting blood glucose in patients with metabolic syndrome (a cluster of metabolic risk factors such as high blood pressure, high blood sugar, and high cholesterol) while also improving triglycerides, HDL cholesterol, and diastolic blood pressure. (12) Curcumin has also been found to block the progression of pre-diabetes to full-scale diabetes, (11) as well as protect against diabetic complications, such as retinopathy and neuropathy. (11,13)

- **Momordica charantia**, also known as bitter melon, is a tropical vine that has been widely studied for its anti-diabetic effects. It contains a variety of bioactive compounds such as charantin and vicine that act by different mechanisms to increase insulin secretion, lower insulin resistance, and inhibit glucose absorption. (3,14) A meta-analysis of 10 studies on the effect of Momordica charantia in lowering markers of diabetes found that the medicinal plant significantly reduced fasting glucose, post-prandial glucose, and hemoglobin A1c. (15)

- **Fenugreek** (Trigonella foenum-graecum), also known as Methi in India, is an annual herb in the pea family with a diverse array of active components and a long history of use in treating a broad spectrum of conditions, including diabetes. A meta-analysis of 12 studies on diabetes and prediabetes showed that fenugreek significantly decreased levels of both fasting and postprandial blood glucose and hemoglobin A1c (as well as total cholesterol). (16)

- **Gymnema sylvestre** is a perennial woody vine that inhibits glucose absorption (17) and stimulates insulin secretion. (18) Appropriately, the Hindi term for the plant, gurmar or gudmaar, translates to “sugar destroyer.” In a study on the effects of Gymnema sylvestre in improving diabetic markers, patients receiving 500 mg of the herb daily for three months exhibited reduced fasting and postprandial blood glucose and lowered hemoglobin A1c (also with improvements in lipid profiles.) (19) In another study, patients taking one gram per day of Gymnema sylvestre for two months showed significantly higher circulating insulin and reduced fasting and post-prandial blood glucose. (18)

We've just examined four of these herbs but imagine the potent anti-diabetic effect from the mixture of ten of these traditional medicinal plants contained in BloodSugar-Pro™. And to make the product even more powerful, it's formulated with yet another proven ingredient, a more recent addition to the glucose-lowering arsenal — GCB70® (green coffee bean extract).

**GCB70® GREEN COFFEE BEAN EXTRACT**

Coffee beans technically are not beans, but rather green seeds contained in berries that grow on shrubs or small trees of the genus Coffea. They can be roasted and ground to make the mood-lifting drink many people consume each morning or left raw and processed to create an extract rich in beneficial phytochemicals such as the polyphenol chlorogenic acid. Chlorogenic acid functions as an antioxidant and anti-inflammatory as well as a regulator of glucose and lipid metabolism, (34) making it a potential treatment option in diabetes, cardiovascular disease, obesity, and cancer. BloodSugar-Pro™ contains low-dose GCB70®, a special form of decaffeinated green coffee bean extract containing 70 percent chlorogenic acid that is used in higher dosages as a popular weight loss supplement (i.e., GCB70®).

Specifically, regarding diabetes and blood glucose regulation, chlorogenic acid inhibits the liver enzyme glucose-6-phosphatase which catalyzes the last step in two processes that occur in the liver: glycogenolysis and gluconeogenesis. (35) Both of these glucose-manufacturing mechanisms developed in animals and humans to prevent blood sugar levels from falling dangerously low in the event of fasting or famine. In
glycogenolysis, glycogen, the primary carbohydrate stored in the liver and muscles, is broken down into glucose and released into the bloodstream to maintain adequate blood sugar levels in the absence of food. If glycogen stores become totally depleted, another process, gluconeogenesis, takes over to synthesize glucose "from scratch." The problem is, these internal safety mechanisms that ensure adequate blood glucose levels during fasting may become dysregulated or lose sensitivity with age, causing additional glucose to enter the bloodstream (from new synthesis or breakdown from glycogen stores), even in non-fasting individuals, further exacerbating chronically elevated blood sugar. That's why identifying synthetic or natural substances like green coffee bean extract that can inhibit glucose-6-phosphatase to short-circuit the processes of glycogenolysis and gluconeogenesis has been the goal of much recent diabetes research.

**Estimated age of being diagnosed with diabetes in different ethnic groups in America**

In a clinical trial on the effects of green coffee bean extract on measures of glycemic control in metabolic syndrome, patients received 400 mg of the extract or placebo twice daily for eight weeks while consuming a balanced diet. By the end of the study, green coffee bean extract significantly improved both fasting glucose and insulin resistance (as well as systolic blood pressure, waist circumference, and appetite level). (36) Another study found similar results in mice, where green coffee bean extract also reduced insulin resistance (and fat accumulation associated with obesity). (37)

**BLOODSUGAR-PRO™ – PART OF A COMPREHENSIVE PROGRAM TO CONTROL BLOOD GLUCOSE**

We'll end where we began — that the incidence of diabetes and pre-diabetes is on the rise and even those who are told that their fasting glucose results are "normal" need to guard against the increased disease risk and accelerated aging associated with chronic and periodic blood sugar elevations. The mixture of 10 Ayurvedic medicinal herbs and GCB70 in BloodSugar-Pro™ acts synergistically to provide a powerful overall glucose-lowering, anti-diabetic effect. For the best results, BloodSugar-Pro™ should be used as part of a complete regimen that also involves diet and lifestyle modifications such as losing extra pounds and maintaining a suitable weight, exercising regularly for 30 minutes most days of the week, and eating a healthy diet free of refined carbohydrates and sugary drinks, and rich in whole fruits, vegetables, whole grains, lean protein, and low-fat or non-fat dairy.

Making these diet and lifestyle changes while supplementing with BloodSugar-Pro™ is a winning approach to controlling blood glucose and supporting your health and longevity.

To read all of the references for this article in full, please head over to our website by following this link: https://www.antiaging-systems.com/articles/436-Controlling-blood-glucose-reduces-your-risk-of-deadly-diseases
BloodSugarPro™

An aid for dieting and those concerned about blood sugars

This is the latest supplement to help lower and control high blood glucose levels

Its comprehensive all natural and synergistic formula has numerous positive benefits.

180 capsules $49.99 Multipack
special offer buy 3+ $45.00 each

MasterCard, Visa & Amex are accepted for BloodSugarPro™.

Ingredients:

- Momordica charantia
- Eugenia jambolana
- Swertia chirata
- Trigonella foenum-graecum
- Melia azadirachta
- Gymnema sylvestre

- Emblica officinalis
- Tinospora cordifolia
- Curcuma longa
- Picrorhiza Kurroa
- GCB70® (green coffee bean extract with 70% chlorogenic acids)

- Hydroxypropyl methylcellulose

For further information visit: www.antiaging-systems.com

Note: US$ prices are subject to shipping and handling (and taxes where appropriate).

Disclaimer: All educational information is provided under IAS terms and conditions which may change without notice. Restrictions may apply in some countries.

Credit card payments available
The 1st Line™ story (so far)  
By Richard Stead

BACKGROUND

1st Line is a supplement that creates OSCN molecules in a glass of water, (otherwise known as oxythiocynate ions). These molecules are found naturally in tears, saliva and mother’s milk. They are literally the ‘first line of immune defence’ and have been proven against all manner of viruses and pathogens.

Professor Paul Clayton wrote about them (with references) in the Aging Matters™ magazine (Issue 1, 2013).

The problem with OSCN are that they have a very short half-life, a matter of less than a hour, which means they have to be generated almost on demand. It is estimated that a healthy body could produce about 25 mg of OSCN every day. As you can imagine that makes a supplement containing OSCN very difficult to create, especially in terms of delivering them to the market and a user.

Richard Stead, (the author of this article) was the clever chemist who worked out a way by means of a kit, (known as 1st Line™) that makes OSCN in a glass of water, it can then be consumed/ drunk immediately afterward. The method is very simple and providing that each of the four agents are mixed in the right order, (they are clearly marked as 1, 2, 3 and 4), then 25 mg of OSCN can be consumed/ drunk as a supplement. Note that there is that there is no discernible smell nor taste.

The fact is that antibiotics are well-known to be failing and there are very poor choices for anti-virals too, so one would have thought that OSCN would have garnered a lot of attention.

In this article Richard Stead describes the difficult processes and choices he has been through, ever since IAS introduced the concept of OSCN in 2009.

It is amazing how fast time goes, indeed IAS interviewed me 10-years ago (that video is on YouTube). Since then, a lot has happened- and lot that should have happened has NOT happened!

Sales of 1st Line™ have been steady but the hoped-for explosion has not been achieved. I thank IAS and the Aging Matters™ magazine for their efforts to support the presentation of 1st Line™ and for being an early adopter of this technology.

The first years of euphoria were after the OSCN laboratory results and they excited the practitioners. Alas, we have not been able to publish many more results to give those practitioners wider reasons to look at 1st Line™ to help their patients. My apologies to you for this paucity of support, but please allow me to explain the story to date and where we are now.

DISAPPOINTMENTS AND SUCCESSES

OSCN has been shown to be effective against pathogens (bacterial, viral and fungal). Nature designed the ion to be such a broad-spectrum antimicrobial. With the enormous number of academic papers verifying this scope of efficacy, I applied for UK Government and EU funding to proceed to clinical trial, but every application was unsuccessful.

The main reason for rejection was described as “not novel” since OSCN has been in the literature for about 40 years. However, in that time no proposal to use it
in humans or animals was ever put forward! Thus, I was of the opinion that novelty had been proposed and that the kit design is unique- in that you create the effective substance at the point of use- again novelty.

ANTIBIOTIC RESISTANCE

The biggest surprise to me was that our proposed application, which offered a viable alternative to some antibiotics, (at a time when the world is worried about pathogens becoming ABR (antibiotic resistant)) did not receive any feedback at all.

Maybe my applications were not good enough? But why did nobody think that I might just have one of the answers to the growing tsunami of ABR? Some of the more virulent pathogens are predicted to cause the deaths of 500,000 people over the next 10 years! There are currently in excess of 20,000 per year dying this way in the EU and a similar number in the USA. I thought I might get a call from somebody who wanted to review my technology and then maybe tell me if it was of zany use.

Instead I faced silence.

INVESTMENT REQUIREMENTS

Putting these disappointments to one side, we then presented a request for funding to a range of brokers to find corporate or private funding. The request was for a modest US$7 million for some lab work and a trial involving about 60 Influenza sufferers. I’m sad to say that there was not one taker.

The reason was simple. Their investment returns would be too low compared to Chronic Conditions. Investors who want products for cardiac, cancer and diabetic conditions etc. Ergo, they prefer protocols that are taken by the patient every day for the rest of their lives, not curing them of course, but managing the disease- or more accurately, controlling their symptoms to an acceptable level of ill-health.

Thus, it is hard to dispute the financial logic behind my failure to gain investors.

So, it was up to me to go it alone and see what I could achieve within my own financial capabilities. A strategy was created, and actions planned. I decided we needed to achieve 4 things:
1. A trial/study for a condition which have enough potential to generate millions of unit of sales. (A number that should be achievable in a healthcare environment).
2. A place to perform the study/trial.
3. Create the OSCN using food grade materials, thereby being able to market it as a food supplement rather than a pharmaceutical product. Since all the components are food approved or have GRAS status, we have achieved this criterion.
4. Price the product at a reasonable value so that it would be respected by users.

The outcome of these criteria is that we settled on making Upper Respiratory Tract (URI) conditions our focus. Below I will explain how this decision was arrived at.

**HUMAN STUDY**

A hospital in Hungary conducted this study and the results (see addendum 1) were wonderful – with an unexpected bonus outcome, see addendum 2.

The biggest obstacle to this strategy was satisfying the Hospital’s Ethics Committee. I am indebted to the Head of the Hospital Dr. Thomas, and to Dr. Paul Clayton and Dr. Szabolcs Ladi for their belief in OSCN and their support in presenting details to the Committee, and to their desire to find answers to ABR together with their intelligence in helping identify URIs as the target condition. In our submission we stated that should the patient see/feel no benefit then we would offer them antibiotics. We were treating patients that did not have life-threatening conditions, so the Ethics Committee were able to give the go-ahead.

**WHY URIS?**

Some statistics in Healthcare within the developed world surprised me:

1. URIs have more antibiotics prescribed than for any other indication, (this is ridiculous and shameful when it is known that 80% of URIs are of viral causation).
2. Each year people suffer on average two URIs of varying severity.
3. Typically, a URI will last 2-5 days.
4. URIs are the biggest cause of time off work.
5. Lost time off work is an average of more than 2 days per incident. That time lost in the USA amounts to over 100 million days per year.
6. The cost to the US economy is estimated at several Billion Dollars.
   a. The employees can lose earnings.
   b. There is the consideration of a drop-in productivity for the company.
   c. There is the implicate cost to insurance and the insurers.
   d. There is a loss of tax/income for the Government.
   e. Current healthcare costs in this area are enormous – hospital time, medications, etc

So, if we can do something to reduce the number of working days lost, we offer savings to all interested parties. Even if it is only a reduction of one day, then an effective antiviral is a unique achievement.

**SUMMARY**

We are almost there, as you can see from the attached summary of the study results; the results are quite remarkable with an 80% success in symptom reduction within 24-48 hours and a faster than usual rate of recovery. This was achieved with one dose of 1st Line™ which was sometimes repeated the following day.

I am convinced that what we have achieved is to offer our bodies a natural boost to our immune defence. In so doing it is a faster alternative to overcome the pathogens.

Education is, as always, an important part of my work as is the support for Practitioners. One point that became clear after talking with the three Doctors involved in the study, was that at whatever stage the OSCN was delivered there was a positive and sustained improvement in symptoms.

The message is clear, take 1st Line™ as soon as any symptoms appear.

**OTHER OSCN USES**

There are other indications/conditions with which OSCN is proving to be successful, especially the Gut. A dysbiotic Gut can cause all sorts of immune problems and especially its links with the Brain, affecting cognitive and mental issues. Almost all people that suffer with mental conditions also have bad guts. Is the brain affecting the Gut, or is it the Gut affecting the brain? OSCN has a positive effect upon a dysbiotic gut. Work on this use of OSCN currently takes up most of my time.
<table>
<thead>
<tr>
<th>Patient Number</th>
<th>Sex</th>
<th>Age</th>
<th>Indications by Attending Doctor based on symptoms</th>
<th>Doses</th>
<th>Doctor Comments by Attending Doctor</th>
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</thead>
<tbody>
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<td>m</td>
<td>3</td>
<td>Acute Bronchitis on top of Asthma</td>
<td>2 X</td>
<td>Fast recovery</td>
</tr>
<tr>
<td>2</td>
<td>m</td>
<td>3</td>
<td>Bronchitis</td>
<td>1 X</td>
<td>Accelerated recovery</td>
</tr>
<tr>
<td>3</td>
<td>f</td>
<td>54</td>
<td>Fever and Pharyngitis</td>
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</tr>
<tr>
<td>4</td>
<td>f</td>
<td>42</td>
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<tr>
<td>5</td>
<td>m</td>
<td>18</td>
<td>Fever and cough - Viral</td>
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</tr>
<tr>
<td>6</td>
<td>m</td>
<td>24</td>
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</tr>
<tr>
<td>7</td>
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</tr>
<tr>
<td>8</td>
<td>f</td>
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</tr>
<tr>
<td>9</td>
<td>m</td>
<td>64</td>
<td>Smoker with COPD and Acute Bronchitis</td>
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<td>11</td>
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<td>12</td>
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<td>Improved at day 2</td>
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<tr>
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<td>Acute Bronchitis</td>
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<td>Rapid improvement</td>
</tr>
<tr>
<td>14</td>
<td>f</td>
<td>19</td>
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<td>1 X</td>
<td>Rapid recovery</td>
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<tr>
<td>15</td>
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<td>1 X</td>
<td>Good and rapid recovery</td>
</tr>
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<td>Lobar pneumonia</td>
<td>1 X</td>
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<td>17</td>
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<td>1 X</td>
<td>Fast recovery</td>
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<tr>
<td>18</td>
<td>f</td>
<td>62</td>
<td>Acute Bronchitis</td>
<td>1 X</td>
<td>Rapid improvement</td>
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<tr>
<td>19</td>
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</tr>
<tr>
<td>20</td>
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<td>35</td>
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<td>Recovered by 24 hours</td>
</tr>
<tr>
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</tr>
<tr>
<td>22</td>
<td>m</td>
<td>62</td>
<td>Viral infection, Musculo-skeletal symptoms</td>
<td>1 X</td>
<td>Recovered at day 3</td>
</tr>
<tr>
<td>23</td>
<td>f</td>
<td>35</td>
<td>COPD and Acute Bronchitis</td>
<td>1 X</td>
<td>Recovered by day 4</td>
</tr>
<tr>
<td>24</td>
<td>m</td>
<td>44</td>
<td>Viral infection, Musculo-skeletal pain</td>
<td>1 X</td>
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</tr>
<tr>
<td>25</td>
<td>m</td>
<td>56</td>
<td>Pharyngitis</td>
<td>1 X</td>
<td>Good recovery by day 2</td>
</tr>
<tr>
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<tr>
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<td>52</td>
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<td>2 X</td>
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<tr>
<td>29</td>
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<td>1 X</td>
<td>Partial recovery</td>
</tr>
<tr>
<td>30</td>
<td>f</td>
<td>46</td>
<td>Bronchitis and Asthma</td>
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<td>Infection rapidly cleared</td>
</tr>
<tr>
<td>31</td>
<td>m</td>
<td>22</td>
<td>Bronchitis</td>
<td>1 X</td>
<td>Infection rapidly cleared</td>
</tr>
<tr>
<td>32</td>
<td>m</td>
<td>51</td>
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<td>1 X</td>
<td>Good recovery</td>
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<tr>
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<td>72</td>
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<td>1 X</td>
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<tr>
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<tr>
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<td>f</td>
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<td>2 X</td>
<td>Infection rapidly cleared</td>
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<tr>
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<td>Rapid recovery</td>
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<tr>
<td>37</td>
<td>f</td>
<td>56</td>
<td>Bronchitis</td>
<td>2 X</td>
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<tr>
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</tr>
<tr>
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<td>Rapid improvement</td>
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<tr>
<td>40</td>
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<td>46</td>
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<td>2 X</td>
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<tr>
<td>41</td>
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<td>2 X</td>
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</tr>
<tr>
<td>42</td>
<td>m</td>
<td>54</td>
<td>COPD and Bronchitis</td>
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<td>Moderately effective</td>
</tr>
<tr>
<td>43</td>
<td>m</td>
<td>67</td>
<td>Bronchitis</td>
<td>2 X</td>
<td>Moderately effective</td>
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<tr>
<td>44</td>
<td>f</td>
<td>49</td>
<td>Rhinitis/Bronchitis</td>
<td>2 X</td>
<td>Fast recovery</td>
</tr>
<tr>
<td>45</td>
<td>m</td>
<td>73</td>
<td>Rhinitis</td>
<td>2 X</td>
<td>Clinical improvement</td>
</tr>
<tr>
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<td>m</td>
<td>47</td>
<td>Bronchitis</td>
<td>2 X</td>
<td>Major improvement</td>
</tr>
<tr>
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<td>f</td>
<td>61</td>
<td>COPD and Bronchitis</td>
<td>2 X</td>
<td>Infection cleared rapidly</td>
</tr>
<tr>
<td>48</td>
<td>m</td>
<td>65</td>
<td>COPD and Bronchitis</td>
<td>2 X</td>
<td>Very effective</td>
</tr>
<tr>
<td>49</td>
<td>f</td>
<td>39</td>
<td>Rhinitis and possible Bronchitis</td>
<td>2 X</td>
<td>Rapid recovery</td>
</tr>
<tr>
<td>50</td>
<td>f</td>
<td>44</td>
<td>Bronchitis</td>
<td>2 X</td>
<td>Recovered at day 3</td>
</tr>
<tr>
<td>51</td>
<td>f</td>
<td>48</td>
<td>Pharyngitis</td>
<td>1 X</td>
<td>Rapid recovery</td>
</tr>
<tr>
<td>52</td>
<td>m</td>
<td>52</td>
<td>Acute Bronchitis</td>
<td>2 X</td>
<td>Rapid recovery</td>
</tr>
<tr>
<td>53</td>
<td>m</td>
<td>63</td>
<td>Pneumonia</td>
<td>2 X</td>
<td>Rapid recovery also used Antibiotics</td>
</tr>
<tr>
<td>54</td>
<td>f</td>
<td>28</td>
<td>Bronchitis</td>
<td>1 X</td>
<td>Rapid recovery</td>
</tr>
<tr>
<td>55</td>
<td>m</td>
<td>38</td>
<td>Bronchitis and Asthma</td>
<td>2 X</td>
<td>Rapid recovery</td>
</tr>
</tbody>
</table>
It is my view that destroying pathogens in the gut is important, although 1st Line™ is an initial step in taking the patient towards a healthy situation linked with a sensitive and validated probiotic and prebiotic protocol.

**THE SEPSIS BONUS**

There was an exciting follow-up story after the successful study. Throughout the Hungarian hospital, apparently, the scale of the success of our study was becoming well-known. A few weeks after the study had been completed the head of ICU approached Dr. Ladi to ask if he could have some of the OSCN kits.

He had a female patient with Sepsis and, after several weeks during which all antibiotics had failed, she was in a coma with her body starting to shut down. X-rays showed her lungs were blank, covered with infection, she relied upon a machine to oxygenate her blood. Her prognosis was bad. We managed to get product administered to her within 3 days. The Ethics committee had no difficulty in allowing OSCN to be administered since the success of the earlier study and a “last resort” scenario made for a quick decision.

It was rewarded with a positive response by the patient. The day after her first dose, (delivered by feeding tube) X-rays showed some clear patches in her lungs and within a few days she was free of infection, able to breathe unaided. Sadly, she never recovered consciousness. Alas, her body was unable to recover from the late stage process and she died infection free.

This success led to two more uses of OSCN- to fight Sepsis within the same hospital. A baby and a young man in his thirties. In both cases the OSCN was delivered orally and was effective at removing the infection within a matter of days, in both cases leading to a full recovery and who, fortunately for them since they were allowed OSCN before they arrived at the “last resort” stage.

My request is that when Practitioners use or prescribe 1st Line™ they inform us of all or any of the outcomes. I will prepare and share the positive and negative outcomes with all interested parties. Of course, all such reports must be anonymised, we only need: Age, sex, weight, indication, protocol (including other medications involved) and the outcome. Thanks in advance for your consideration and support.

Should one or more Practitioners wish to carry out a small study on an indication, I am happy to consider some form of support. The results of such a study to be used for presentations and made generally available to other interested parties.

**CONCLUSION**

The dogma and the vested interests that are in place today make it very difficult to bring a natural agent such as OSCN to the general marketplace. This is even in spite of the marvellous properties it may hold in terms of treatment prospects and paucity of side-effects and contraindications.

As an inventor, my hope is that OSCN (1st Line™) will one day become mainstream and not just remain in a specialist realm for those who ‘happen to know.’ But as is so often in life, each of us does the best we can and Que Sera Sera.

I trust that this article is published in time to help you through the next flu and URI season.

---

*A paper is to be published soon and it will include all these clinical details and results, (see addendum 2 at end for details).*

**A REQUEST**

In the years since the first article on OSCN, it has been used successfully for several conditions. All the successes have been reported to me are second-hand anecdotes. It is good to know of successes and anecdotes are better than nothing. I have not been told of indications for which OSCN was not successful, and I am sure there must have been some.

---

**THE BATTLE FOR EFFECTIVE ANTIBIOTICS AND ANTIVIRALS CONTINUES**
Clinical Study: Indications: URI
Active ingredient: Hypothiocyanite
Date: November 2018

HIGHLIGHTS
- absence of adverse effects
- absence of toxicity
- speed of action
- no secondary infections
- positive response by patients
- positive response by Clinicians
- wide spectrum of indications
  - o viral
  - o bacterial
  - o viral and bacterial

SUMMARY

The records of 55 cases are presented. More cases were treated, but many did not return to the hospital to report progress or lack of progress. As and when they can be retrieved, they will be added to the results collated here.

Cases varied in age from 3 to 73, and were of both sexes. Initial presentations included a range of viral infections, acute bronchitis, rhinitis and sinus infections, pharyngitis. There was one case of pneumonia.

The cases were monitored by 3 doctors (VI, KN and GK). The overall impression is of a high cure rate, with rapid remission of symptoms, in a mix of viral and bacterial cases. As bacterial analyses were not performed, it is not possible to be more specific on this point; however epidemiology suggests that about 70% of primary care URIs are likely to be of viral primary origin. The three physicians involved and the patients themselves rated the intervention as either wholly successful in the majority of cases (47/55) or partially (7/55). There was only 1 case that did not respond at all.

As many of the conditions being treated tend to resolve over time, it is not possible to say categorically that the intervention was effective. However, the large number of comments from the doctors describing the recovery as ‘rapid’, all of whom were seeing large numbers of these types of patients on a regular basis throughout a year, provides some reassurance that the effects of the intervention generated a time course of recovery out of the normal range. Comparison of these data to published data from community-acquired and
also experimental infection of volunteers shows an apparent reduction of time to resolution of symptoms.

This open label study leaves much to be desired, and cannot be said to prove the case for the intervention. However, it will be improved by the inclusion of further cases as they become available and, even at this preliminary stage, provides persuasive justification for a more rigorous follow-up clinical study.

COMMON COMMENTS

1. Doctor would use it again, as it accelerated recovery and reduced requirements for antibiotics.
2. Patients would use it again as it enhanced / accelerated recovery.
3. Treatment prevented late complications ie no secondary bacterial infections
4. No adverse effects noted.

The data suggest that time to resolution of symptoms may have been shortened in the patient group compared to healthy volunteers challenged with influenza virus (graph from: “Time Lines of Infection and Disease in Human Influenza: A Review of Volunteer Challenge Studies” Carrat et al., Am J Epidemiol. 2008;167(7):775-785.) and compared to typical duration of symptoms in community acquired influenza. As an open-label study this interpretation is of course open to challenge since a placebo effect could have occurred.

No adverse effects were recorded and no patients were withdrawn from the study.
1ST LINE™ (OSCN)
Fighting the flu season

1st Line™ is literally the ‘first line’ of immune defence.

1ST LINE™ KIT $79.99
MULTI-PACK SPECIAL
OFFER BUY 3 + $70.00 EACH.

MASTERCARD, VISA AND AMEX ARE ACCEPTED FOR 1ST LINE™.

Note: US$ prices are subject to shipping and handling (and taxes where appropriate).

Disclaimer: All educational information is provided under IAS terms and conditions which may change without notice. Restrictions may apply in some countries.

Credit card payments available

The world’s first OSCN supplement is a four part kit that is easily and quickly made in a glass of water for immediate use—plus it has no taste nor smell.

For further information visit:
www.antiaging-systems.com
Professor Paul Clayton reported in the Aging Matters magazine No1, 2012, that ‘the age of antibiotics is coming to an end.’ This has been a concern for some time as antibiotics becomes less effective and can’t be relied upon as they were in the past. What’s more, antibiotics do not destroy viruses, and when it comes to effective antivirals there are very few choices indeed.

OSCN
A British chemist by the name of Richard Steed was concerned how chlorine was being in food- as it is sprayed onto salads. It kept the vegetables free of bacteria, but it is hardly a healthy option for the consumers. He investigated nature and found that oxythiocynate ions, otherwise known as OSCN are present in tears, saliva and mother’s milk and appear to destroy many pathogens including viruses, since OSCNs are literally the first line of immune defence. Thereafter, he created the world’s first supplement containing OSCN molecules. Soon it was realised that they also had massive health implications.

An OSCN kit
An OSCN kit OSCNs have a very short half-life, something like 30 minutes, which is why you have never seen them presented in a supplement before. But 1st Line™ is different because it is a kit containing the active and 3 enzymes to make up the supplement in a glass of water for consumption straight away. It is easy to use, simply add the 4 agents in the right order (marked 1-2-3-4), stir and drink. 1st Line™ has no smell or flavor.

Doing so creates 25 mg of OSCN, the equivalent to what a healthy body produces in a day.

How to use
Obviously, there are a plethora of infections out there, but on a simple level take a 1st Line™ dose at the first sign of infection and repeat the dose for a day or two afterward, as necessary. For maintenance, some individuals like to take one dose of 1st Line every month in order to keep the ‘body burdens’ low.

ACF228® - THE ULTIMATE FREE RADICAL SCAVENGER

The ACF abbreviation means ‘antioxidant complete formula’ and 228 because it was Dr. Richard Lippman’s 228th formula that proved to be very effective. Dr. Richard Lippman was nominated for the Nobel Prize in medicine for his work in measuring free radical activity in-vivo; in other words what happens within the human body. The result of that work led to the incredibly comprehensive formula known as ACF228®.

Free radicals
Free radicals are unstable molecules that can be created ‘naturally’ within the body and they can ‘disorganise’ healthy cells by crashing around- a bit like bumper cars at a fayre. The free radical theory of aging was first proposed by Professor Denham Harman in the late 1950s and it helps to explain the degenerative processes that occur during aging.

Hierarchy
There are several levels of free radicals, and the worst of them are the superoxide and the hydroxyl free radicals. Neutralisation of ‘higher level’ free radicals can create a plethora of lower level free radicals, so it is important to try and impact every stage, but of course to particularly target the most destructive free radicals.
Potency
In the ACF228® formula there are numerous unique molecules like catalase and especially NDGA within ACF228®.

Synergy
ACF228® has numerous synergistic agents that have been designed to help neutralise every level of free radicals, no other single product has been in-vivo designed- each ACF228® capsule contains:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Quantity</th>
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<tr>
<td>N-acetylcysteine</td>
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<tr>
<td>L-methione</td>
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</tr>
<tr>
<td>Di-indole-methane</td>
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<td>Deodorised garlic</td>
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<td>10 mcg</td>
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Dose
ACF228® has been designed as a one capsule per day formula.

BEC5® CURADERM - A TRULY AMAZING SKIN CREAM

The story of BEC5® cream is remarkable. When it is told people often can't believe it- and when they realise the cream has been available for decades, they become flabbergasted!

How so? Because this naturally derived skin cream has been shown to be virtually 100% effective in removing basal and squamous cell skin cancers (sic).

History
It all starts on the island of Vanuatu in the South Pacific, when a young man by the name of Bill Edward Cham (BEC) walked around the fields and noticed horses and cows rubbing themselves against a local plant called the Devil's Apple, (a member of the eggplant family). Asking the farmers why they did this, he learnt that the animals had skin lesions and the rubbing helped clear them up. As Dr. Cham was training to be a biochemist this fascinated him and over 20+ years his research revealed a remarkable secret.

Skin cancers
He identified that the active ingredient was solasdines and that it ‘ate away' a ribose coating on cancer cells that isn't present on healthy cells. The result is that the cancer cells are exposed to the immune system as ‘non-self' cells, then the natural process of apoptosis is induced and then the body rids itself of the cancer cells.

Documented history
Many journals, particularly those in Australasia have published these studies and numerous magazines around the world have divulged this. Two excellent books on this subject are; the eggplant cancer cure and Curaderm a non-invasive medication for skin cancer.

Application
BEC5® cream is applied topically to SCC and BCC lesions twice a day and covered with a micropore. The typical treatment time is between 6 to 12 weeks. So why hasn't this cream, (that avoids the need for surgery in most cases) not become famous and mainstream?
The answer is simple, the active agent is natural and can't be patented and therefore the current medical system will not promote it.

Note
BEC5® is not suitable for melanoma cancers.
CAN-C™ EYE-DROPS - A BREAKTHROUGH FOR CATARACT

Can-C™ eye-drops are the original formula containing n-acetylcarnosine (NAC), a natural di-peptide that has potent anti-glycating and antioxidant properties to prevent lipid peroxidation.

Clinicals
Patients who placed 2-drops of Can-C™ into their eyes twice daily for a 5/6-month period reported:
- An improvement in their visual acuity (90%)
- An improvement in the clarity of their lens (88.9%)
There have been numerous reports of cataract shrinkage and even disappearance with documented evidence that Can-C™ eye-drops remain effective (and safe) more than 24-months later.

Actuals
The most commonly expressed initial reports are that glare is significantly improved, (for example night driving is easier) and color perception is enhanced. Most importantly, is an ability to read eye charts clearer, due to the better transmissivity of the lens.

Broad spectrum
Evidence is mounting that Can-C™ is efficacious for many conditions including:
- Cataracts (particularly the senile version) for both humans and dogs
- Glaucoma
- Presbyopia
- Eye strain
- Ocular inflammation
- Blurred vision
- Vitreous opacities and lesions
- Diabetes mellitus complications
- Contact lens comfort
- Dry eye syndrome

CENTRO-PRO™ - IMPROVING MENTAL RECALL SPEED

Centro-Pro™ capsules contain centrophenoxine, (pronounced, centrow-fen-ox-in) and it is a classic ‘nootropic.’

History
- Centrophenoxine can increase acetylcholine levels in the brain.
- It is also very effective in reducing lipofuscin levels, this component is part of Alzheimer brain plaques.
- Accordingly, this reduction of membrane toxins like lipofuscin aids cellular communication. This is a key feature of the membrane hypothesis of aging—which has been published by Professor Nagy.
- Thus, centrophenoxine is useful for those concerned about Alzheimer’s, but in addition, centrophenoxine has been noted to help enhance and protect the performance of an healthy, aging individual.

General cognitive benefits
Classifying the precise benefits of the various nootropics can be tricky. Many people simply refer to their ailing cognitive facilities as “memory loss.” However, a quick breakdown of that statement requires further evaluation- in order to determine the precise nature of the problem.
In such a case, centrophenoxine is perhaps best suited to the issue of recall speed. So, If your speech appears to be full of “ums” and “ers” (whilst your brain tries to catch up with your mouth), then it is likely that
centrophenoxine will be an aid; helping to bring clarity and flow to speech and thought.

Doses
A typical dose for the ‘average’ person is 250 mg once or twice daily.

Typical responses
Deprenyl can assist:
- The treatment of Parkinson’s and other dementias.
- Male libido enhancement.
- Boost metal energy levels especially focus and attention.
- Life expectancy, at least in animals.

Dosing
Parkinson's patients use high doses, but healthy aging adults typically use 1 mg to 3 mg per day, this is dependent on age and need.

Note
These doses do not consider synergy with other dopamine enhancing agents and, in such cases, would have to be adjusted accordingly.

DEP-PRO™ - FOR FOCUS AND CONCENTRATION

Dep-Pro™ contains deprenyl (also known as selegiline), it was created in the 1960s by Professor Joseph Knoll to treat Parkinson's patients since deprenyl improves dopamine levels.

Significant longevity studies
Professor Knoll’s experiments with rats also produced the most incredible longevity benefits. When the animals were fed deprenyl in their food, they lived so much longer that even after the last nontreated rat died, the first of the deprenyl treated rats was yet to die! (Note: importantly, these results were verified independently in another study not undertaken by Professor Knoll).

Based on this research, Dean, Fowkes and Morgenthaler, published in the book, Smart Drugs and Nutrients, that the loss of dopamine in aging humans can be mapped against both the development of Parkinson’s and even death.

Mode of action
For a long time deprenyl has been described as a MAO-b inhibitor, that it to say that is prevents this enzyme from destroying dopamine, leading to its improvement.

Later, Professor Knoll noted that deprenyl also raises PEA levels and catecholamine sensitivity.

NATURAL ESTROGENS AND PROGESTERONE FOR WOMEN - NHRT IS THE RIGHT KIND OF ‘HRT’

When estrogens were discovered in the 1920s they had to be derived from pregnant mare urine- all because a laboratory solution was too expensive to synthesize. But today everything has changed, yet this ancient practice continues! These facts have been pointed out by Jonathan Wright, M.D. in his book; ‘Don’t let your doctor give you horse urine!’

Esnatri™- a unique tri-estrogen
Esnatri™ is a bioidentical triple estrogen cream. It comes directly from the work of Dr. Jonathan Wright who has highlighted that most women produce
estrogens in the ratios of 90% estriol, 7% estrone and 3% estrone. Usually, tri-estrogen preparations attempt to replicate the human hormones estriol, estradiol and estrone, in the ratio of 80:10:10. Some bi-estrogens entirely overlook estriol, claiming it is a ‘weak’ estrogen. However, women naturally produce high levels of estriol since it is considered to have anti-carcinogenic effects.

Horse estrogens are, as you would expect, not identical to human. Yet some physicians still prescribe them, even though bioidentical estrogens can now be easily produced. Some people believe that the known side-effects from ‘HRT’ are because the correct natural human hormones are not utilised. In other words, women should be using ‘nHRT.’

Progest-Pro™
Progest-Pro™ is a 5% bioidentical progesterone cream and it is a counterbalance to estrogens. For whilst women can significantly decline in estrogen levels during menopause, they rarely reach zero production levels, whereas progesterone can sometimes not be measured at all.

It is also the low level of progesterone that significantly impacts bone strength, leading onto osteoporosis. So, there are numerous reasons to ensure that progesterone is taken alongside estrogen in an nHRT program.

GHRPs - AN ALTERNATIVE TO GROWTH HORMONE INJECTIONS

Dr. Daniel Rudman’s research in the late 1980s concluded that elderly patients using Growth Hormone (GH) could reverse their biological age-markers by as much as 20-years! Specifically, he noted that they had improved the patients’ skin, hair, muscle mass, decreased fat levels and enhanced levels of stamina, strength and well-being.

The issue with GH, (other than its expense), is that it does have to be injected to be effective; this is because it is a 191-chain of aminoacids so it simply can’t be absorbed via any other route. Furthermore, many countries have classified GH injections as a controlled substance, partly because of its anabolic actions.

GHRPs
Thankfully, Dr. Walker’s research has shown that the use of GHRPs, (growth hormone releasing peptides) have a much safer profile whilst enjoying many of the same benefits. GHRPs can be sublingually and intranasally, and thus avoid the need for needles.

- The GHRP feedback loop means that they cannot cause the pituitary to down-regulate production of GH.
- GHRPs are not controlled substances.
- Rather than inducing a spike of GH in the blood, GHRPs augment GH naturally into the blood.

Synergy
The main GHRP is GHRP2 which can be used sublingually, in addition there is also intranasal Sermorelin- this is the precursor to GH, (the first 29-aminoacids). Its function is to release existing stores of GH from the pituitary, rather than encourage more production. Dr. Walker suggests that combining sermorelin with GHRP2 can elicit up to a 5x greater quantity of GH into blood.

Summary
GHRPs have created a genuine alternative to GH injections; they are simpler and easier to use and at the same time they have a safer profile.
**MET-PRO™ - IMPROVING THE INSULIN SENSITIVITY**

Met-Pro™ contains metformin, a diabetes type-2 treatment that has been used for many decades. Metformin differs from other insulin medications, since rather than increasing the production of insulin from the pancreas, it improves the sensitivity of the receptor site to insulin; in other words you ‘get more bang for your buck’ by improving the performance of insulin to peripheral tissues, (like muscles).

This has interesting implications for aging since the neuroendocrine theory of aging teaches us that it is the loss of sensitivity at receptors that is a major ‘fault’ in aging.

**Weight loss**

Persons who utilise metformin, (even those who may be pre-diabetic or otherwise not affected), have often noted that it helps them to maintain a healthy weight with lower fat levels etc.

**Antiaging**

Dr. Ward Dean has stated that; “metformin is one of the most promising antiaging, life-extending drugs available.”

It’s a profound statement, but it is predicated on the amazing range of metformin’s clinical effects which include:
- Lowering the blood cholesterol, triglycerides and beta lipo-proteins.
- Reducing the development of atherosclerosis.
- Reducing insulin levels.
- Increasing hypothalamo-pituitary sensitivity.
- Improving the cellular immunity.
- Enhancing the activity of anti-cancer drugs.
- Suppressing the growth of some tumors.
- Increasing the maximum life span of animals.

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**MZS™ - BECAUSE NOT ALL MELATONINS’ ARE CREATED EQUAL**

Melatonin is produced at night by the pineal gland to help regulate the circadian rhythm. As we age, the amount of melatonin we produce declines and it results in many persons having a lower quality of sleep.

MZS™ has been formulated by the world’s foremost melatonin expert- Dr. Walter Pierpaoli, his MZS™ (melatonin, plus zinc and selenium), is totally unique since it is designed to mimic the natural night peak of melatonin- leaving you refreshed and alert the following day.

**What does melatonin do?**

Melatonin is vital to protect our hormonal system, regulate immunity and repair our body’s cells. It is commonly used by shift workers and to treat jet-lag and age-related sleep disorders, but its abilities go far beyond its sleep improvement properties.

**Antioxidant effects**

Melatonin is an extremely effective antioxidant; in fact, on a molecule to molecule basis, melatonin has proved to be more efficient in neutralizing toxic hydroxyl-radicals than the two well-known free radical scavengers, glutathione and mannitol.

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**Miles**

Metformin is a milestone, since it is the first medicine in the world to be granted an FDA approved study for antiaging titled; metformin in longevity study.

**Note**

Metformin does inhibit the uptake of vitamin B12, so in order to counter potential side-effects it is recommended to supplement with B12 at the same time.
Lowering the blood cholesterol, triglycerides and beta lipo-proteins.
Reducing the development of atherosclerosis.
Reducing insulin levels.
Increasing hypothalamo-pituitary sensitivity.
Improving the cellular immunity.
Enhancing the activity of anti-cancer drugs.
 Suppressing the growth of some tumors.
Increasing the maximum life span of animals.

Melatonin and longevity
Melatonin's effect on longevity is well documented. Laboratory tests on animals have demonstrated that melatonin increased their lifespans by 20%.

MZS™ and ARMD
Age related macular degeneration comes in two forms, wet and dry and it is a notoriously difficult disorder to treat- linked to blindness. In a 24-month study, (NY Academy of Science, 2005, 1057:384-392) on 100 patients showed that after 3 months, the majority of patients taking 3 mg of MZS™ nightly had halted the progression of their AMRD and at 6 months many reversed their ARMD. Remarkably this was true for both the wet and dry forms!

DR. PIERPAOLI’S MELATONIN
Dr. Pierpaoli’s MZS™ formula mimics the pineal gland’s release of melatonin when it is taken between 9-11 PM because it releases between 1-3 AM, the natural night-peak of melatonin in blood.

NATURE’S MARVELS™ - HOW PEPTIDE BIOREG-ULATORS IN FOOD ARE GENE SWITCHES

Professor Vladimir Khavinson is the President of the European Academy of Gerontology and Geriatrics. In the 1980’s he was a Colonel in the Soviet Union military medical corps. He and his team were approached by Kremlin who wanted a way to protect their troops from various problems. The research uncovered a remarkable link between short-chain peptides and DNA. Basically, short-chain peptides- in food act as gene specific switches; they termed them ‘peptide bioregulators.’

This former military secret is now available and to-date 21 have been identified to assist various organs, glands and tissues. These peptides, unlike proteins, can enter through the stomach and a comprehensive list of patents, confirms that each of the peptide bioregulators interact with DNA - activating repair and regenerative processes.

Original materials from the trials
Nature’s Marvels™ are the English packaged and approved peptide bioregulators from Professor Khavinson, (all bovine sourced).

Here is the complete list:
1. Adrenal
2. Bladder
3. Blood vessels
4. Bone marrow
5. Brain (CNS)
6. Cartilage
7. Heart
8. Kidney
9. Liver
10. Lung
11. Muscle
12. Ovaries
13. Pancreas
14. Parathyroid
15. Pineal
16. Prostate
17. Retina
18. Stomach
19. Testes
20. Thymus
21. Thyroid

Dosing
A typical program is as follows:
- Start with an intensive course of 2-capsules once a day for 30-days.
- Thereafter, use 2-capsules once a day for 10-days, repeat every 1, 2 or 3 months.
OXY-PRO™ - FOR PASSION AND SEX

Oxy-Pro™ contains oxytocin, a hormone produced by the hypothalamus but excreted via the pituitary gland. Its orthodox role is to help women give birth, since the large dose that's injected helps relax the uterus and alleviates the passage of the child. Meanwhile, Dr. Thierry Hertoghe's book; 'passion, sex and longevity, the oxytocin adventure'- has shown it to have many other roles.

The love hormone

Oxytocin has been dubbed ‘the love hormone’. This is because oxytocin can induce feelings of bonding and care. Not just between individuals, but even with animals too! Oxytocin measurements have been taken between lovers, friends, relatives, parents and their children etc. From those results, it has been noted that oxytocin levels are higher when they are in their presence. Mothers naturally bond with their children, but even men, (especially those who experience the live birth), express their emotions as wanting to care and protect their offspring, these effects may be attributable to the release of oxytocin, hence triggering the bond. On the other side of the coin, psychopaths are notoriously low in their oxytocin levels, which may be a cause of their uncaring feelings towards other humans.

The pain and orgasm connection

Fibromyalgia can be a very debilitating disorder with a lot of pain, sometimes constant for those who suffer with it. In women with fibromyalgia it was noted that when they were experiencing an orgasm, they felt no pain at all. Later, it transpired that women undergo a burst of oxytocin during orgasm. Trials were undertaken to see if oxytocin supplementation could alleviate the pain of fibromyalgia, there was some success, but the sideeffect noted was that those women now enjoyed multiple orgasms! This was a fact picked up on by the popular press and is probably singularly the action most responsible for bringing oxytocin into the public gaze.

PIRA-PRO™ - THE ORIGINAL NOOTROPIC

Nootropic is a term meaning ‘towards the mind’ and they were originally designed for senile dementias, but now they have become popular for aging individuals to enhance their mental and cognitive processes. Ward Dean, M.D. has highlighted these facts in his ‘Smart Drug’ series of books; ever since then the term ‘smart drugs’ has become mainstream.

Piracetam, the original

Pira-Pro™ contains piracetam and piracetam was the first nootropic developed by Dr. Giurgea at UCB in the 1960s. Originally, it was used for travel and altitude sickness, but shortly afterward people realised that piracetam had positive effects on cognition.

What does piracetam do?

Piracetam is used for a wide range of conditions. For example, it has been shown to improve attention levels and memory retention. Piracetam can slow down ‘senile involution.’ In other trials, piracetam has improved memory consolidation in those suffering from ‘age-related memory impairment.’ Piracetam has aided patients recovering from strokes, in-particular improving post stroke speech impairment (aphasia). Another use has been for acute and chronic cerebral
ischaemia, (decreased blood flow to the brain). Piracetam has even increased neuronal activity in the brain when measured with EEG. For normal individuals, piracetam can enhance idea creation and the ability to ‘see things through.’ In other words, to have ideas and then be able to bring them to fruition. The level of clarity piracetam induces is often described as; “the fog has lifted.”

How does piracetam work?
Piracetam’s key method of action is upon the Corpus Callosum, the region of the brain that links the two hemispheres. Many experts believe this enables piracetam users to channel greater brain potential by connecting the logical side of the brain with the creative side. This could be described as a Yin and Yang effect.

THYROIDS - SUPPORTING THE HYPOTHYROID EPIDEMIC

Dr. Broda Barnes estimated that 40% of adults are deficient in thyroid hormones. As the thyroid gland is of pivotal importance, a lack of its function can affect a wide variety of age-related health disorders. Ergo, supplementation can have many positive effects.

The thyroid gland
The thyroid controls the body’s metabolism, (the rate at which it burns calories for energy) and the body’s utilization of fat; so a decline in thyroid function, can result in poor concentration, confusion, memory problems, cold hands and feet and weight gain. Other conditions triggered by an underactive thyroid are painful musculoskeletal issues that affect tendons, muscles and ligaments.

Do I need a thyroid supplement?
A doctor can check your blood levels, but a simple method is to take your body temperature when you wake in the morning. It should be in the range of 97.8 to 98.2 degrees Fahrenheit. If it is regularly lower than 97.8 F you could be hypothyroid and if regularly higher than 98.2 F then hyperthyroid.

Synthetic vs. natural thyroids
Synthetic thyroids typically only contain T3 or T4, but natural thyroids (like Armour® etc.) are of porcine origin and contain the full spectrum of T1, T2, T3 and T4 thyroid hormones.

Converting between the two
The table provides a helpful guide to the conversion rates for those wishing to switch from synthetic thyroids to natural versions. As always, we recommend consulting with a physician before making changes to your health program.

<table>
<thead>
<tr>
<th>Dose of Dessicated Thyroid (Grains)</th>
<th>Equivalents (mg)</th>
<th>Dose of T3 (Lithytonine) (mcg)</th>
<th>Dose of T4 (Levothyroxine) (mcg)</th>
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</table>
Nature’s Marvels™
Described by scientists as “Nature’s gene switches” that could replace stem cells
Professor Khavinsons Peptide Bioregulators

Credit card payments available

For more information on Nature’s Marvels™ products visit naturesmarvels.com
www.antiaging-systems.com is your comprehensive resource for information about all the leading commercially available antiaging, preventative and regenerative products and therapies available today.

Visit www.antiaging-systems.com and find articles, videos, audio-files, all referenced with a guide of where to obtain your needs.

Currently the site covers topics related to all the following products.

**BOOKS**
- Atlas of Endocrinology
- Great Teeth for Life
- Passion, Sex & Oxytocin
- Physician Hormone Handbook V2
- Cataract Cure
- Melatonin, the Key of Life
- Peptides in the Control of Ageing
- Reversing Physical Aging V1
- Eyesight Saviors
- Natural Skin Cancer Treatments
- Peptide Biomarker Revolution

**DIAGNOSTICS**
- Bio-Clip™ CUFF
- Foodsafe®

**GHRP2**
- GHRP2 (GHRP2-Pro™)
- Sermorelin (Serm-Pro™)

**HORMONES**
- Aldosterone (Aldo-Pro™)
- HCG (HCG-Pro™)
- MSH2 (MSH2-Pro™)
- Progesterone (Progest-Pro™)
- TRH (Abaris™)
- DHEA (DHEA-Pro™)
- Hydrocortisone (Hydrocort-Pro™)
- Oxytocin (Oxy-Pro™)
- Thymus
- Vasopressin (Vaso-Pro™)
- Estrogens (Esnatri™)
- Melatonin (MZS™)
- Pregnenolone (Preg-Pro™)
- Thyroid (Armour™ etc.)

**NUTRITION**
- 1st Line™ (OSCN)
- Benfotiamine (Milgamma™)
- Boluoke® (Lumbrokinase)
- Beta-Glucans (BG-Pro™)
- Boost-Pro™
- ACF-228®
- Boluoke® (Lumbrokinase)
- Can-C™ + capsules
- Carnosine (Carno-Pro™)
- DIM (DIM-Pro3™)
- L-tryptophan (Ltryp-Pro™)
- NADH
- Novisyn® (Hyaluronan)
- PQQ (PQQ-Pro™)
- Symprove®
- Vitamin D3 (D3-5000™)
- MultiV45-Pro™
- PEA (Pain-Pro™)
- TA65® capsules (100)
- TA65® capsules (250)
- GCB70-Pro™
- NAD+ (NAD+Pro™)
- Nitric-Pro™
- Sleep-Pro™
- Vitamin B12 (B12-Pro™)
PEPTIDE BIOREGULATORS

- Adrenal (Glandokort®)
- Bone Marrow (Bonomarlot®)
- Heart (Chelohart®)
- Lungs (Taxorest®)
- Pancreas (Suprefort®)
- Prostate (Libidon®)
- Testes (Testoluten®)
- Bladder (Chitomur®)
- Cartilage (Sigumir®)
- Kidney (Pielotax®)
- Muscle (Gotratix®)
- Parathyroid (Bonothyrk®)
- Retina (Visoluten®)
- Thymus (Vladonix®)
- Blood Cell (Ventfort®)
- CNS/Brain (Cerluten®)
- Liver (Svetinorm®)
- Ovaries (Zhenoluten®)
- Pineal (Endoluten®)
- Stomach (Stamakort®)
- Thyroid (Thyreogen®)

SMARTS

- Adrafinil (Adra-Pro™)
- Deprenyl (Dep-Pro™)
- Modafinil (Moda-Pro™)
- Hydergine® (Hy-Pro3™)
- Picamilone (Picamilon-Pro™)
- Reminyl® (Galantamine)
- Centrophenoxine (Centro-Pro™)
- Idebenone (Ideb-Pro™)
- Piracetam (Pira-Pro™)
- Vinpocetine (Vin-Pro™)

SPECIALIST (INCLUDING MEDICINES)

- 4MU (4MU-Pro™)
- Anastrozole (Arimidex®)
- BHT (BHT-Pro™)
- Doxycycline
- Finasteride (Proscar®)
- Naltrexone (Nal-Pro™)
- SAMe (SAMe-Pro™)
- Acarbose (Glucobay®)
- ATP-Pro™
- Bromocriptine (Parlodel®)
- Dutasteride (Avodart®)
- Gerovital-H3® (GH3-Pro™)
- Sildenafil (Sildenafil-Pro™)
- Aminoguanidine (Amino-Pro™)
- B17-Pro™ (amadaylin)
- DMSA (DMSA-Pro™)
- EDTA (EDTA-Pro™)
- Metformin (Met-Pro™)
- Reminyl® (galantamine)

TOPICALS

- BEC5® Curaderm cream
- Minmax-Pro™
- Can-C™ eye-drops
- NeyDent® toothpaste
- TA65® cream
- Joint-Pro™ cream
- OraltidePRO™ mouthwash
- Youth Gems®
Growing older never felt better

Tomorrow's treatments today™

- World’s largest antiaging resource
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- More than 25 years’ experience

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