

Age Reversal Update

Sequential Order of Interventions

Measure Your Rate of Aging

Renew Your Stem Cells

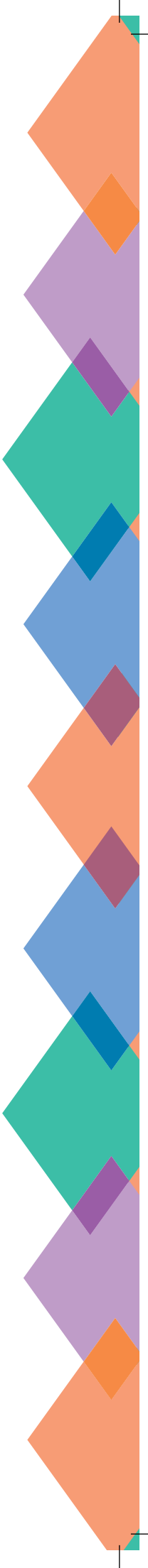
Senolytics Improve Joint Function

Rapamycin Dose Schedule

Young or Umbilical Cord Plasma

Published by the **Society for Age Reversal**

A Public Benefit, Private Association **RescueElders.org**



Practical Guide to Human Age Reversal

As of September 5, 2018

Preamble

All suggestions in this document represent an amalgamation of opinions that are current as of the time of printing.

The sciences of regenerative medicine, however, are evolving rapidly.

*We therefore suggest that before initiating any of the interventions outlined herein, you log on to the website of a public benefit group called **Society for Age Reversal** to ensure you have access to the latest information on each intervention, including new caveats and amendments to dosing protocols.*

SOCIETY FOR AGE REVERSAL

“A public benefit group seeking to reverse human senescence”

- 1) Aging is at least partially reversible using existing therapies;
- 2) There is a growing interest in transforming this into clinical reality;
- 3) Those interested in age reversal want active (not passive) engagement;
- 4) The most efficient way to advance age-reversal research is via a private association of like-minded individuals:

RescueElders.org

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Introduction to the Prospect of Systemic Human Rejuvenation

Until recently, it had not been possible to outline a scientifically supportable approach to reverse biological aging in a meaningful manner.

Over the past four years, a number of regenerative technologies have been demonstrated in animal models, and some have been studied in proof-of-concept human trials.

Findings from this research indicate that elderly people may be able to regain a degree of youth and vigor, and alleviate chronic health issues, by counteracting degenerative factors that have recently been well characterized by researchers.

The purpose of this document is to provide, for your consideration, a sequential order of biomedical interventions aimed at neutralizing aging pathologies systemically.

Implementing these interventions in the order suggested may offer the best opportunity to achieve optimal results with currently available technologies.

The most important component of the implementation of these interventions is, however, for each individual to have their **aging biomarkers** measured and to repeat these tests after the intervention(s). This is critical if we are to ascertain what degree of age-reversal may be occurring.

Results from biomarker tests function like a personal “report card” that help quantify how well your body is responding to the experimental interventions.

More importantly, biomarker results provide data that enables our group to identify what, in general, works to slow aging and what doesn't, along with any possible side effects (or side benefits).

The first section describes the **sequential order of experimental age-reversal interventions**, a succinct discussion of the scientific rationale for this ordering along with dosage schedules, cost considerations, and so on.

More elaborate discussions along with a **listing of physicians** who have expressed an interest in prescribing these regenerative approaches can be found on www.RescueElders.org.

The second section describes tests in the **Age Management Panel** that can help ascertain whether you are growing biologically younger in response to the age reversal interventions.

The third section is an in-depth review of simple, less experimental steps you can easily initiate now to make your body's aging biochemistry more hospitable to the youth restoring effects of the sequential order of experimental age-reversal interventions that begin on the next page.

Lastly is a description of our **Society for Age Reversal** and battle plans to defeat biological aging within the lifetimes of most of you reading this today.

Suggested Sequential Order of Age Reversal Interventions

- **Step 1: mTOR inhibition (rapamycin)**
- **Step 2: NAD⁺ restoration (infusions/patches)**
- **Step 3: Eliminate senescent cells (senolytics)**
- **Step 4: Young plasma/umbilical cord stem cells**

Section 1: Experimental Age Reversal Interventions

Sequential Order Based on Current Knowledge

STEP 1: mTOR INHIBITION USING RAPAMYCIN

Our very existence—our individual creation and growth into adulthood—was dependent on highly activated mTOR in our cells that fueled their rapid proliferation.

With aging or excess calorie intake, most people's mTOR activity remains at dangerously high levels long after we've achieved skeletal maturity.

If the body no longer needs to grow in size and mature, but mTOR activity remains high, something else can start to grow: cancer. Lowering mTOR signaling has indeed been shown to reduce cancer.

Turning down mTOR has additional benefits, including turning on autophagy to help rid cells of accumulated debris. Studies in elderly people indicate improvements in immune functions in response to **mTOR inhibition**. Very recent work suggests that at least some methods of lowering mTOR signaling may even make senescent cells less “toxic” by suppressing the secretion of harmful signaling molecules.

Aside from severe calorie restriction, which is impractical for most people, the most efficient way of suppressing excess mTOR is with a drug called **rapamycin** at a dose of about 5 mg once a week.

Low-cost rapamycin is becoming available and some exhibitors at RAADFest 2018 may assist in identifying affordable sources.

More on the age-reversal potential of rapamycin and suppression of excess mTORC1 is described in the third section of this publication.

RAPAMYCIN EXTENDS LIFESPAN

- Decreased cancer incidence.
- Improved cardiac function.
- Improved systemic health.
- Lifespan increased about 50%*.

*After brief treatment (mice and dogs).

Kaerberlein, Matt. “Translational Geroscience: Targeting mTOR Signaling to Promote Healthy Longevity.” *Innovation in Aging*, Vol. 1, No. S1 (2017): 743.

RAPAMYCIN INCREASES PRODUCTION OF NAÏVE IMMUNE CELLS & EXTENDS LIFESPAN

In elderly mice, 6 weeks of treatment with the mTOR inhibitor rapamycin rejuvenated hematopoietic stem cell function, leading to increased production of naïve lymphocytes, an improved response to influenza vaccination, and extended life span.

“mTOR regulation and therapeutic rejuvenation of aging hematopoietic stem cells.” *Science Signaling* 2, ra75 (2009)

RAPAMYCIN REVERSES HEART DYSFUNCTION

Late-life mice treated with **rapamycin** for 3 months showed:

- Significant benefits in cardiovascular function with reversal or attenuation of age-related changes in the heart.
- Beneficial behavioral, skeletal, and motor changes compared with mice fed a control diet.
- Reduced indicators of inflammatory, metabolic, and hypertrophic expression in cardiac tissues.

“From these findings, we propose that late-life rapamycin therapy not only extends the lifespan of mammals, but also confers functional benefits to a number of tissues....”

Aging Cell. 2013 Oct;12(5):851-62. doi: 10.1111/accel.12109.

Epub 2013 Jul 7. Late-life rapamycin treatment reverses age-related heart dysfunction

HOW DOES RAPAMYCIN WORK?

- Directly turns down mTOR
- Induces autophagy (rids cells of debris)
- Improves bone marrow (immune) function
- Decreases excess cell propagation
- Metabolizes cellular fat stores
- Suppresses toxic senescent cell secretions

"TORC1 INHIBITION ENHANCES IMMUNE FUNCTION AND REDUCES INFECTIONS IN THE ELDERLY"

July 11, 2018

"The objective of this phase 2a randomized, placebo-controlled clinical trial was to determine whether low-dose mTOR inhibitor therapy enhanced immune function and decreased infection rates in 264 elderly subjects given the study (mTOR inhibitor) drugs for 6 weeks.

A low-dose combination of a catalytic (BEZ235) plus an allosteric (RAD001) mTOR inhibitor that selectively inhibits target of rapamycin complex 1 (TORC1) downstream of mTOR was safe and was associated with a significant ($P = 0.001$) decrease in the rate of infections reported by elderly subjects for a year after study drug initiation.

In addition, we observed an up-regulation of antiviral gene expression and an improvement in the response to influenza vaccination in this treatment group."

Elderly people taking mTOR inhibitors had 40% increased response to influenza vaccine.

"TORC1 inhibition enhances immune function and reduces infections in the elderly." Science Translational Medicine-July 11 2018

"From extending lifespan to bolstering the immune system, rapamycin's effects are only just beginning to be understood."

-The Scientist-March 1, 2018

RAPAMYCIN DOSAGE SCHEDULE

- Typical dose used by organ transplant patients is around 1 mg a day.
- This kind of daily dosing causes side effects.
- Dr. Alan Green has developed a protocol using about **5 mg** of rapamycin once a week*.
- Weekly dosing expected to deliver benefits of mTORC1 inhibition and autophagy without significant side effects.
- Ongoing clinical trial testing 5 mg/week of rapamycin and measuring aging markers.

*Reference for Dr. Green: <https://rapamycintherapy.com/>

CAVEATS REGARDING mTOR SUPPRESSION

- Do not excessively suppress **mTOR** as this can contribute to sarcopenia, frailty and excess weight loss.
- Some people aggressively suppress mTOR for **3 months** and then eat normally for **1 month**. During this one-month period they usually reduce or discontinue AMPK activators.
- Any intervention carries an inherent risk of iatrogenesis, which describes adverse events related to medical treatment.

Letting aging take its normal course is itself inevitably risky

STEP 2: NAD⁺ RESTORATION

Nicotinamide adenine dinucleotide (NAD⁺) is a coenzyme essential for cell function and systemic life sustenance.

NAD⁺ declines with age to the point that by the time humans reach 80 years of age, they may only have around 4% of the NAD⁺ levels they did at age 21. It may be a mere coincidence, but, interestingly, the average human lifespan in modern societies today happens to be around 80 years.

As it relates to today's age-reversal interventions, including cell rejuvenation therapies, most of these therapies are likely to work best in people with optimal levels of NAD⁺.

You may have heard about a study from Harvard Medical School earlier this year that identified a method to reverse vascular aging. This reversal was accomplished by boosting endothelial levels of NAD⁺ and the cellular protein sirtuin1 (SIRT1).

Resveratrol exerts its beneficial effects mainly by boosting SIRT1. Older people, however, are so deficient in NAD⁺ that they are unable to fully benefit from resveratrol. That's because SIRT1 functionality is highly dependent on NAD⁺.

Methods that remove senescent cells or remove toxic debris from inside aged cells (autophagy) will be of little benefit if there is insufficient NAD⁺ to enable continual youthful metabolic activity.

Hence, individuals seeking to delay or reverse certain aspects of aging should take steps to boost cellular NAD⁺ levels. This will likely improve responses to resveratrol and/or calorie restriction, both of which boost SIRT1.

Youth factors derived from young plasma or infused stem cells appear to be more likely to induce rejuvenation in response to higher NAD⁺ levels. However, we acknowledge the need for more experimental evidence to verify better responses to young plasma/stem cells by boosting NAD⁺ levels.

A dietary supplement called nicotinamide riboside increases NAD⁺ blood levels.

However, if you're over the age of 45, you may want to directly boost your NAD⁺ levels via intravenous infusion of 300-500 mg of NAD⁺ administered every other day for a total of three infusions. This is typically done on a Monday-Wednesday-Friday schedule, with each infusion taking 3-4 hours.

The cost of the infusions can be high, so researchers are testing NAD⁺ patches and other delivery vehicles to bring the cost of NAD⁺ restoration down considerably.

Recent data indicates that after NAD⁺ is restored to a youthful range (with infusions, patches, etc.), maintenance doses of 500 mg/day (or perhaps higher) of oral nicotinamide riboside can maintain optimal NAD⁺ levels.

The NAD Treatment Center, based in San Diego, is at this year's RAADCity, and you can visit them and inquire about infusions, patches, and other direct methods of boosting NAD⁺ (and then continue with oral NAD⁺ precursors to maintain youthful levels).

For a list of doctors that are prescribing direct NAD⁺ boosting therapies log on to www.RescueElders.org/NAD.

NAD⁺ NEEDED FOR DNA REPAIR

- Each cell in your body suffers ten **DNA breaks** every day.¹
- Unrepaired **DNA damage** is a major degenerative aging factor.
- NAD⁺ depletion with aging **turns off** DNA repair enzymes.

NAD⁺ restores cellular DNA repair

1. Lieber MR. The mechanism of double-strand DNA break repair by the nonhomologous DNA end-joining pathway. Annu Rev Biochem. 2010;79:181-211.

HOW TO BOOST CELLULAR NAD⁺

- In persons under 45-55, supplement with 250-500 mg a day of NAD⁺ precursor nicotinamide riboside.
- Older individuals may need NAD⁺ infusions or patches.
- Follow up NAD⁺ therapy with 250-750mg/day of nicotinamide riboside.

HARVARD MEDICAL SCHOOL - MARCH 22, 2018

“We’ve discovered a way to reverse vascular **aging** by boosting the presence of naturally occurring molecules in the body that augment the physiological response to exercise.”

The active molecules: SIRT1 and NAD⁺

David Sinclair, Ph.D. professor in the Department of Genetics

Impairment of an Endothelial NAD⁺-H₂S Signaling Network Is a Reversible Cause of Vascular Aging. *Cell*, 2018; 173 (1): 74 DOI: 10.1016/j.cell.2018.02.008

CAVEAT FOR CANCER PATIENTS

Those being actively treated for cancer should not aggressively boost NAD⁺ because this might repair DNA that chemotherapy and/or radiation is seeking to destroy. Here are some basic guidelines for cancer patients:

- **NAD⁺** facilitates **DNA repair**. Radiation and most chemotherapy destroys cell DNA.
- Those undergoing treatment for cancer might **delay** boosting **NAD⁺**.
- Those suffering “chemo-brain” or bone marrow toxicity* from chemo may consider **NAD⁺** after complete response.

*Rejuvenating Aged Hematopoietic Stem Cells Through Improvement of Mitochondrial Function.

Ann Lab Med. 2018 Sep;38(5):395-401. doi: 10.3343/alm.2018.38.5.395

STEP 3: ELIMINATE SENESCENT CELLS FROM YOUR BODY

As cells reach the end of their life cycle or become severely damaged, most **self-destruct** via a normal process known as **apoptosis**.

Some cells fail to undergo this beneficial **self-elimination** process. They instead linger in a dysfunctional “zombie-like” state where they impede organ function, emit damaging inflammatory signals, and thus shorten healthy lifespan.

These “**senescent cells**” often spread throughout tissues and inflict massive damage. This can result in organ failure and degenerative disorders related to persistent low-grade inflammation (and release of protein-degrading enzymes).

Senescent cells survive by evading apoptotic mechanisms the body normally uses to eliminate them.

Studies published only a few months ago reveal that just a few senescent cells transplanted into young mice result in persistent physical decline characteristic of pathological aging. When senescent cell-laden mice that are the **human** equivalent of **75-90 years old** were given compounds (senolytics) that selectively eliminated **senescent cells**, there was an alleviation of physical decline. The old mice treated with **senolytic** compounds lived a remarkable **36%** longer.

Once we’ve lowered mTOR signaling with rapamycin, and restored healthy levels of NAD⁺, the logical next step in a sequence of regenerative therapies is to take the powerful measure of directly purging your body of these “toxic” senescent cells.

Senolytic therapy has not only demonstrated profound rejuvenating properties by itself, but may also help open up opportunities for other rejuvenation strategies to be more effective.

For instance, if you are considering infusions of mesenchymal stem cells, young plasma, or umbilical cord-derived cells/plasma, you want your body to be in a state that welcomes these pro-youth interventions. If your body is in a condition of **chronic inflammation**, with cell-to-cell communication severely compromised, it’s hard to imagine these young plasma or cell therapies having profound or long-lasting benefits.

Senescent cells generate a firestorm of destructive factors that may result in otherwise effective rejuvenation therapies being obstructed. Removing these senescent impediments ahead of time (using **senolytic** compounds) may enable pro-youth strategies to do their beneficial work unimpeded.

As you’ll learn this weekend, senolytic therapy by itself is demonstrating impressive benefits. So much so that most self-experimental study subjects are seeking to repeat this intervention after 6 months.

The senolytic cocktail that some of our supporters have been experimenting with is a combination of **dasatinib**, a well-studied cancer drug, and high-dose **quercetin**, a phytochemical found in some of the foods we eat daily.

This treatment should be done under the supervision of a healthcare provider, although we have not yet heard of any serious side-effects or adverse events from this protocol.

Dasatinib and **quercetin** have demonstrated potent **senolytic** and subsequent age-reversal properties when used together in appropriate doses.

The dosage schedule, pricing options, and other information shown below are based on what we know at the time of this printing. Before personally utilizing these therapies, please log on to www.RescueElders.org/senolytics to see if there are any updates to this experimental senolytic protocol that should be done under physician supervision.

SENESCENT CELLS ACCUMULATE WITH AGE AND:

- Impede organ function
- Create chronic inflammation
- Emit protein-degrading enzymes
- Shorten healthy lifespan

No value in retaining dysfunctional aged, "zombie" cells

SENOLYTICS EXTEND HEALTHY LIFESPAN

Rodent study shows senolytics **dasatinib + quercetin**:

- Improve frailty symptoms (gait, grip strength)
- Enhance coat color appearance
- Improve cardiac/arterial function
- Reduce tremors and urinary incontinence
- Decrease osteoporosis
- Increase exercise endurance
- Improve kidney/liver pathologic age scores
- Extend healthy lifespan

Does anyone NOT want these benefits?

Aging Cell. 2015 Aug;14(4):644-58. doi: 10.1111/acel.12344.

Epub 2015 Apr 22

DEADLY IMPACT OF SENESCENT CELLS

Transplanting small numbers of senescent cells into **young** mice causes:

- 1) Persistent physical dysfunction.
- 2) Spread of cell senescence to host tissues.

Transplanting senescent cells into **older** mice causes:

- 1) Same pathologies as young mice.
- 2) Reduced survival.

SENOLYTICS INCREASE LIFESPAN IN OLD AGE

Intermittent oral administration of senolytics to senescent cell-transplanted young mice and naturally aged mice:

- Senolytics increase lifespan in old age
- Alleviates physical dysfunction
- Increases post-treatment survival by 36%

"Senolytics improve physical function and increase lifespan in old age."

Nature Medicine, July 9th, 2018

HOW SCIENTISTS ARE TESTING CANCER DRUGS TO SLOW DOWN AGING

"It's looking like very old mice are able to substantially improve their health span, reduce or delay age-related diseases and increase their survival."

They (the scientists) calculated that if only one in 7,000 to 15,000 cells is senescent, then age-related problems in physical function started to appear in the mice.

Like a contagion, senescent cells seem to pass on their accelerated aging abilities to healthy cells by releasing a number of factors that can cause tissues like muscle to deteriorate.

Mice given senescent cells and the senolytic compounds lived 36% longer than animals with senescent cell transplants that were not given the drugs.

Time Magazine - July 9, 2018

THIS DRUG COCKTAIL REDUCED SIGNS OF AGE-RELATED DISEASES AND EXTENDED LIFE IN MICE AND HUMAN CELLS

“Group led by Mayo Clinic anti-aging researcher James Kirkland not only offers a clear look at the power of senescent cells to drive the aging process, but also a pharmaceutical cocktail that, in mice at least, can slow and even reverse it.

Compared to mice who aged normally, those who started getting the dasatinib-querctetin cocktail at an age equivalent to 75 to 90 years in humans ended up living roughly 36% longer, and with better physical function.

In human cells in a test tube and in mice bearing human senescent cells, the dasatinib-querctetin cocktail showed equally promising results, targeting senescent cells while leaving other cells intact.

Aging...is beginning to look more and more like a disease — and a treatable one at that.

This is not a place for self-experimentation,” Kirkland said. “Until safety trials are completed, he added, “we don’t know what’s going to happen.”

We Don't Have Time to Wait... dasatinib plus querctetin has been tested in humans

Los Angeles Times - June 10, 2018

SENOLYTIC DOSE SCHEDULE

One querctetin + dasatinib dose once a week for two weeks only (two total doses)

QUERCETIN

25 mg per kilogram of body weight is approximately:

100 pounds = 1,125 mg
165 pounds = 1,875 mg
220 pounds = 2,500 mg
275 pounds = 3,000 mg
330 pounds = 3,750 mg

continued next column

DASATINIB

2.5 mg per kilogram of body weight is approximately:

100 pounds = 112 mg
165 pounds = 187 mg
220 pounds = 250 mg
275 pounds = 305 mg
330 pounds = 375 mg

Take first dose of querctetin/dasatinib (preferably on empty stomach) then repeat same dose one week later.
(May repeat this protocol in 6-12 months, or sooner as your doctor may direct.)

Possible side effects include: Mild flu symptoms, diarrhea, headache, fatigue for 12-24 hours.

Caveat: Take in presence of qualified medical doctor in case of severe allergic reaction. Do not engage in strenuous exercise during, or for one week after, the treatment period.

HOW TO OBTAIN DASATINIB

Four tablets cost **\$2,200** in United States.

Provides two doses (160 mg each dose) to be taken one week apart for only two consecutive weeks.

Lower Cost Alternative:

Compounding pharmacies could offer dasatinib for around \$200.
(Doctor’s prescription needed in either case.)

For physician listing and compounding pharmacy sources: RescueElders.org

DRUGS EXTEND HEALTHY LIFESPAN IN MICE

“Researchers identified a novel class of (senolytic) drug that delays several age-related symptoms in mice. The results demonstrate the ability of compounds with potential to extend healthy life.”

National Health Institute - September 12, 2017

STEP 4: YOUNG PLASMA AND/OR STEM CELLS

When young blood is circulated into old animals (parabiosis), the old animals grow biologically younger.

Based on consistent findings revealing regenerative factors contained in young plasma, including human umbilical cord plasma, some self-experimenters are having infusions done using very young healthy plasma, mesenchymal stem cells, stem cell exosomes, and/or blood components from umbilical cord and other maternal gestational sources.

These young plasma or stem cell therapies cover a broad category of treatments that are derived from living organisms. They span protein-based drugs such as interleukin-2 (for immune restoration) to complex substances derived from young whole blood.

The most exciting biologics from an anti-aging standpoint are **blood products** and **stem cells**.

There are several types of these. Blood can come from young individuals or human umbilical cords, and can be used whole, or as plasma or some other individual component.

There are also many types of **stem cells**. They can be derived from many different parts of the body. The age of the stem cells can also vary anywhere from “age zero”—as in umbilical cord-derived stem cells—to your own age, if you use your own stem cells. Each type of stem cell has different properties and potential uses.

From an age-reversal standpoint, we are specifically interested in **young blood products** and **mesenchymal stem cells** from “birth-associated tissue” (usually umbilical cords). These young biologics seem to exert their effects via *signaling* molecules and other substances that help the body rejuvenate itself.

We think these treatments have tremendous potential, but only if you prepare your aged body to accept and nourish these stem cell/young plasma options by following **Steps 1, 2 and 3** as outlined in the beginning of this Section.

The reason we believe the stem cell/young plasma treatment step should come last is that we expect the rejuvenation effect to be particularly strong when these young blood/plasma factors are not fighting the inflammatory cytokines and other damaging signals being produced by a body that is overly

burdened with senescent cells, excess mTOR, deficient NAD⁺, and immune dysregulation.

At this year’s **RAADFest**, there will be several presentations and exhibitors at RAADCity offering young plasma/stem cell rejuvenation approaches. Before any of these expensive therapies are contemplated, we consider it prudent to follow Steps 1-3 outlined here in **Section 1** as follows:

Step 1: Inhibit mTOR using rapamycin

Step 2: Restore youthful NAD⁺

Step 3: Eliminate senescent cells from your body

Once you’ve suppressed excess mTOR, restored NAD⁺ and purged senescent cells, we think you are more likely to benefit from the emerging field of regenerative medicine that utilizes **young blood/plasma** rejuvenating factors as well as other cutting-edge biologics.

For example, we are learning that even advanced therapies involving hundreds of millions of **mesenchymal stem cells** obtained from human cord blood only last **5-8 months** in an elderly person’s body.

If the stem cells are cleared from the body after only a handful of months, we want to be certain the body is well enough to take full advantage of them while they’re still present. We thus have to correct problems that tend to worsen with age that are described in **Section 3** of this publication including:

- **AMPK deficit**
- **mTORC1 over-expression**
- **NAD⁺ deficit**
- **Sirtuin under-expression**
- **Pro-inflammatory milieu**

The good news is that there are validated methods to correct or mitigate these **degenerative factors**.

Some of these degenerative factors are improved with the sequential order of treatments described in this **Section 1**.

But in **Section 3**, we will provide a broad, unified theory that leads to additional, straightforward measures using in many cases simple supplements that you can initiate today to help renew your stem cells.

Restoring one’s biochemistry to a more youthful state will create an ambiance that may enable transplants of umbilical cord blood, healthy stem cells, and other sources of youthful signaling factors to provide more durable benefits.

To help you improve the effects of any age-reversal treatments you might try, we have created a discussion area in our forum (www.RescueElders.org) that lists some of the health problems we see frequently, along with ideas for addressing them that you can explore with your healthcare provider.

We advise you to periodically visit Forum.RescueElders.org to review or join these discussions. They contain ideas about which health factors should be addressed to make you a good age-reversal study participant candidate.

We will be informing our members about where to obtain all the treatments discussed here in future updates. We also look forward to announcing lower cost methods of obtaining these therapies, including young plasma and umbilical cord blood/plasma.

FINDINGS FROM PILOT STUDIES MEASURING NAD⁺ PLASMA LEVELS

Healthy Americans

<u>Age</u>	<u>NAD⁺ Plasma Levels</u>
20-40 years	50-60 mcg/mL
41-60 years	36-39 mcg/mL
> 60 years	4-8 mcg/mL

Unhealthy Americans

<u>Age</u>	<u>NAD⁺ Plasma Levels</u>
72-80 years	under 1 mcg/mL

*Young Unhealthy People Can Have
Low NAD⁺ Plasma Levels*

FACTORS THAT LOWER NAD⁺ LEVELS BEYOND NORMAL AGING

- 1) Mental stress**
- 2) Physical stress**
- 3) Ethanol (alcohol) ingestion**
- 4) Underlying pathologies**

“The Plasma NAD⁺ Metabolome is Dysregulated in ‘normal’ Ageing”
Rejuvenation Research. 2018 Aug 19 and unpublished
clinical observations.

Section 2: Age Management Blood Test Panel

A number of you are contemplating participating in **clinical trials** that aim to induce systemic **age reversal**.

Before initiating any intervention—be it a clinical trial, or even a more informal experiment done on your own with your physician—we ask that you have **blood tests** done that not only help protect against unforeseen side effects, but also enable us to gather and tabulate data to ascertain the degree of regenerative efficacy each therapy is inducing.

Without these standardized **blood tests** that serve as surrogate markers of aging, we will have little more than anecdotes of safety and efficacy from the growing group of people participating in rejuvenation research initiatives.

New Age Management Panel

Over the last ten months or so, we have had long discussions about which **blood tests** provide the best insight into our “**biological age**,” as well as the matter of affordability and ease of access.

What we’ve arrived at will enable as many of you as possible to have these blood tests performed at baseline (before you undergo a potential age-reversal intervention), and at follow-up intervals afterwards.

The panel we’ve come up with enables most of you to have a blood draw done in your local area. The results will provide an in-depth snapshot of your current health status and surrogate biological aging markers.

The cost of having all these tests done by commercial labs is outlandish. One large commercial lab quoted us \$4,000 for this elaborate test panel. Through group purchasing, we’ve arranged for members of the **Society for Age Reversal** to obtain this comprehensive test panel for \$695, a savings of around 80%.

If you are one of the fortunate individuals who still have great insurance coverage, you may be able to obtain these tests at little or no cost. We list a complete breakdown of all the tests included in the Age Management Profile at www.RescueElders.org/blood/.

This can help you determine whether your insurance plan covers them. You can also order them online at www.RescueElders.org.

No matter where you choose to have these tests performed, we implore you to have them done and provide us (**Society for Age Reversal**) with your results so we can meticulously tabulate and draw conclusions from the data. We need this data to be able to determine how the regenerative therapies are working, and which parameters are improving (such as inflammatory control, immune function, and glucose-regulatory markers).

We also want you all to have an **at-home blood pressure** monitor and chart your **blood pressure** one week prior to engaging in a regenerative therapy and each day thereafter. At-home blood pressure monitors cost around \$50 and are widely available in pharmacies.

To order this new **Age Management Profile** today, log on to www.RescueElders.org/blood/.

This will take you to a website that is providing these tests at this **ultra-low** price to help accelerate findings from research endeavors you may be contemplating engaging in.

We’re moving forward on multiple fronts

Each day we move closer to achieving our goal of identifying interventions that may induce systemic age-reversal.

While the principle investigators of these studies have their own panels of markers to assess degrees of efficacy, we need to **standardize** this as much as possible in order to **independently validate** what’s working and what’s not.

We also need to know what co-interventions you may be using. For example, you may consider aggressive **senolytic** therapy and might simultaneously be taking **metformin** and/or other compounds that beneficially activate **AMPK**.

Senolytic compounds help to purge your body of senescent cells. We need to know how well the age-reversal interventions proposed in **Section 1** of this document works in those taking **AMPK activators** (such as metformin) and other popular nutrients, drugs, and hormones.

This kind of critical data is what the **Society for Age Reversal** seeks to gather, analyze, and disseminate once significant findings are established.

So before embarking on any aggressive intervention aimed at achieving younger biological functionality, please have the baseline **Age Management Profile** conducted by logging on to www.RescueElders.org/blood/.

The following pages describe some of the tests included in the new **Age Management Profile**.

AGE-REVERSAL BATTLE STRATEGY

- ◆ INVESTIGATE
- ◆ VALIDATE*
- ◆ DISSEMINATE

*Mandatory Need for Age Management Blood Tests
Baseline and Follow-Up

COST OF AGE MANAGEMENT BLOOD TEST PANEL

QUEST LABS	\$4,000
AGE REVERSAL PROJECT	\$695
EXECUTIVE HEALTH PLANS	\$0

AGE MANAGEMENT BLOOD TEST PANEL

- INSULIN RESISTANCE
- IMMUNE FUNCTION
- CARDIOVASCULAR
- INFLAMMATORY
- THROMBOTIC RISK
- GLYCEMIC MARKERS
- LIPIDS (FULL-SPECTRUM)
- HORMONES
- GROWTH FACTORS
- BLOOD CELL COUNTS
- VITAMIN D STATUS

Section 3: Rejuvenate Your Own Aged Stem Cells

(Using More Common Approaches)

This section of our RAADFest 2018 special report describes findings that may enable you to **rejuvenate** your own **stem cells** using existing approaches.

A flurry of recent findings indicates that we may be able to regenerate our surviving pool of stem cells today.

The significance of this cannot be overstated.

If we replenish our pool of healthy stem cells, we may regain the ability to repopulate our tissues with fresh functional cells.

Our tissues rely on functional cells to sustain organ viability. With age, these functional cells deteriorate.

In youth, as functional cells die off they are generally replaced with new cells created from stem cells present in our body.²

Stem cells, however, are affected by the same degenerative mechanisms as functional cells.¹

As stem cell vitality deteriorates, we lose the ability to repopulate tissues with fresh functional cells.¹ The good news is that stem cells are capable of self-renewal, as well as the production of mature functional tissue cells.^{1,2}

In medical practice today, stem cells are used for regenerative purposes. This is evidenced by the ability of hematopoietic stem cell transplants to save a high percentage of leukemia patients who would otherwise die.³

Based on the phenomenon of self-renewal, if our old stem cells can be reactivated, the end result could be whole-body rejuvenation. Such interventions, however, must maintain a balance of stem cell self-renewal along with balanced differentiation and tissue regeneration, which of course uses up stem cells.^{1,4}

Nutritional interventions may provide an effective approach to activate dormant stem cells. This could enhance tissue regeneration in a way that would not upset the delicate balance between stem cell renewal and excess differentiation, which will be described later in this publication.

Using several lines of preclinical evidence from the scientific literature, we will outline an approach to reactivating aging stem cells utilizing existing therapies.

Stem cells are retained with age

Tissue-specific stem cells are long-lived and endowed with the capacity to **self-renew** and differentiate to produce mature daughter (functional) cells.¹

In addition to self-renewal,² stem cells also differentiate into specific functional cell types, such as blood or heart cells.²

Several factors that drive the aging process, such as metabolic stress, reduce the regenerative potential of stem cells and thus contribute to worsening of age-related conditions.¹

Current published research has identified specific deficits in aged stem cells that preclude youthful functionality.^{1,4} These findings provide targets for restoring stem cell function that can be initiated using current technologies.^{1,4}

WE RETAIN STEM CELLS AS WE AGE

- **Stem cells** are undifferentiated cells capable of self-renewal.
- **Stem cells** differentiate into functional (somatic) tissue cells.
- The **number** of stem cells may not significantly decrease with age.
- Aging reduces regenerative potential of **stem cells**.
- **Stem cell senescence** contributes to age-related conditions.

Khorraminejad-Shirazi M et al., Aging and stem cell therapy: AMPK as an applicable pharmacological target for rejuvenation of aged stem cells and achieving higher efficacy in stem cell therapy, Hematol Oncol Stem Cell Ther (2017)

How to rejuvenate aged stem cells

As it relates to combating aging, there are three cellular processes that we can target today, with more emerging that we will discuss in email updates in the coming year. These three processes are:

1. DNA repair pathways, affected by:⁵

- a. SIRT1
- b. NAD⁺
- c. FoxO

2. Protein homeostasis (proteostasis), affected by:⁶

- a. AMPK
- b. mTOR
- c. FoxO

3. Mitochondrial function, affected by:⁷

- a. SIRT1
- b. NAD⁺
- c. FoxO

Normal aging (along with excess calorie ingestion) causes AMPK and NAD⁺ to plummet, mTOR to be active when it shouldn't be, and SIRT1 to shrivel.^{8,9}

Additionally, several studies demonstrate that FoxO (Forkhead box O) transcription factors are important determinants of longevity, with compelling evidence for their contribution to extreme longevity and healthspan in humans.⁶

Transcription factors control the expression of genes. FoxO transcription factors control the expression of genes involved in oxidative stress resistance, glucose metabolism and cell quiescence, which are all crucial processes that contribute to stem cell renewal and potency.¹⁰

Hallmarks of metabolic dysfunction include dysregulation of AMPK, FoxO and SIRT1, depletion of NAD⁺, and excessive activation of mTOR.^{8,9}

The pathological impact of all this is dysregulation of our stem cell pools.

In what may be a unified approach to living healthier, the ability to reactivate aged stem cells is already being practiced by some enlightened people today.

This includes those who take steps to balance AMPK, SIRT1, FoxO and NAD⁺ while normalizing excess mTOR.

HOW OLD STEM CELLS MAY BE REJUVENATED

- Boost cellular **AMPK** activity
- Suppress excess **mTORC1**
- Increase **NAD⁺** levels
- Activate sirtuin proteins (**SIRT1**)

Khorraminejad-Shirazi M et al., Aging and stem cell therapy: AMPK as an applicable pharmacological target for rejuvenation of aged stem cells and achieving higher efficacy in stem cell therapy, Hematol Oncol Stem Cell Ther (2017)

HOW TO BOOST CELLULAR NAD⁺

- In persons under 45-55, supplement with 250-500 mg a day of NAD⁺ precursor nicotinamide riboside.
- Older individuals need NAD⁺ infusions or patches.
- Follow up NAD⁺ therapy with 250-750mg/day of nicotinamide riboside.

HOW TO BOOST AMPK

- **Calorie restriction** with emphasis on eliminating sugar, starch and leucine.
- **Metformin** or nutrients: curcumin, green tea, Gynostemma pentaphyllum, hesperidin.
- **Aerobic exercise** (less effective in persons over 65 years).

HOW TO INCREASE SIRT1 EXPRESSION

- **Resveratrol** (100-250 mg/day)
- **Calorie restriction**

HOW TO SUPPRESS EXCESS MTOR

- Boost AMPK activity to indirectly suppress mTORC1
- Take 2-6 mg/week of rapamycin to directly reduce mTORC1

High-quality stem cells needed for rejuvenation

Maintaining healthy stem cells is made difficult by the same pathologies that damage our functional tissue cells. These factors include broken DNA, mitochondrial dysfunction, and oxidative stress.

Emerging data indicates that interventions that blunt the effects of excessive calorie intake can rejuvenate some lineages of stem cells by:¹¹⁻¹³

- **Activating AMPK**
- **Suppressing mTOR**
- **Boosting sirtuin**

All of the above can rejuvenate some lineages of stem cells.¹¹⁻¹³

Sirtuins and subsequently FoxOs are activated by resveratrol, but require NAD⁺ for optimal functionality.¹⁴

In aged mice, treatment with the NAD⁺ precursor nicotinamide riboside rejuvenated muscle stem cells.¹⁵ This study showed that boosting NAD⁺ improved mitochondrial function in muscle stem cells and inhibited stem cell senescence.¹⁵ These researchers also showed that boosting NAD⁺ decreased senescence of brain and skin stem cells.¹⁵

Ongoing clinical trials may be revealing neurological improvement in response to aggressive NAD⁺ boosting therapy.¹⁶

Phase I and II clinical trials have demonstrated that oral administration of NAD⁺ precursors results in significant increases in NAD⁺ levels.^{17,18}

Based upon the preclinical efficacy of NAD⁺ precursor treatment in the improvement of physiological function, we expect to see similar improvements in elderly humans in the near future.

AMPK + RESVERATROL + NAD⁺ = STEM CELL REJUVENATION

In response to **resveratrol**, cells express proteins called sirtuins that have several benefits, including the generation of new mitochondria.¹⁹

Sirtuins are dependent on NAD⁺ to interact with FoxO to promote beneficial gene expression.^{14,20}

The cellular enzyme AMPK has a dynamic interaction with sirtuin 1 (SIRT1).¹⁴

The combined benefit of boosting AMPK, NAD⁺, SIRT1 and FoxO is the favorable impact this can have in promoting stem cell health—from self-renewal to regenerative capacity.

Moreover, AMPK activity helps to normalize excess mTOR.¹²

UNDERSTANDING mTOR

mTOR stands for the mechanistic target of rapamycin. It is a protein found inside most cells and is responsible for regulating cellular growth by sensing and integrating diverse nutritional and environmental cues.⁸

Excessive activation of cell mTOR is involved in the chronic diseases plaguing our aging population such as cancer, type II diabetes, and obesity.⁸

Regulating mTOR activity extends life span in laboratory models by delaying the development of chronic diseases including cancer.^{21,22}

For the purposes of this section we limit the discussion to the adverse impact of excessive mTOR on our stem cells.

Maintenance of stem cell pools requires a finely tuned balance between stem cell renewal and differentiation.⁴ When mTOR is excessively activated in certain stem cell lineages, the pool of stem cells becomes exhausted.^{11,23} This diminishes our ability to regenerate our tissues with fresh functional cells.⁴

When properly balanced, mTOR will not adversely impact cellular aging.

Enhancing autophagy in hematopoietic stem cells improves their regenerative capacity.²⁴ One way of inducing autophagy is suppression of excess mTOR via AMPK activation.²⁵

According to a March 2017 report in the journal Nature:

“...it will be exciting to test whether rejuvenation interventions aimed at activating autophagy in unhealthy autophagy-inactivated old stem cells will improve the health of the aging blood system.”²⁴

HOW mTOR IMPACTS CELLULAR HEALTH

Regulation of mTOR represents a viable approach to preserving the stem cell pool, thus maintaining the functionality of our tissues and organs over time.

The drug **rapamycin** is a direct mTOR inhibitor. Rapamycin is being used by an increasing number of human self-experimenters typically in doses of 2 to 6 mg just once per week.

People self-experimenting with compounds like rapamycin often evaluate **aging biomarkers** (like growth and inflammatory factors) and **clinical measures** (like lipids/glycemic levels and organ function) to ascertain whether regenerative effects are occurring.

When calorie intake is reduced, autophagy is beneficially and extensively activated to recycle energy and preserve cellular function.²⁶

Under normal conditions, however, cells must avoid excessive autophagy, which can result in diminished function and cell death.²⁷

A complex protein network, which includes AMPK and mTOR, serves to maintain this delicate autophagy balance.²⁷

Interventions that activate AMPK serve to balance mTOR and enable optimal levels of cellular autophagy. Since this network is tightly regulated, one can usually derive considerable benefits from nutritional interventions without causing excess cell autophagy.

We next describe how you can help balance cellular mTOR activity and autophagy today.

BOOST YOUR CELLULAR AMPK

AMPK was first identified in 1973 for its role in fat metabolism.^{28,29}

Based on evidence from preclinical studies, it is expected that when people practice severe calorie restriction, AMPK activity increases, which confers protective effects.³⁰

One of AMPK's benefits is to signal cells to consume stored fat.³¹ One way AMPK performs this fat-removing process is by down-regulating mTOR.³¹

AMPK is a master energy sensor in cells.²⁶ When AMPK is activated by exogenous compounds (like metformin), cells think they are energy deprived.²⁵ This prompts cells to turn down mTOR and utilize their fat stores for energy production.²⁵

Rapamycin is showing remarkable age-delaying effects in animal models.²² As noted, some intrepid individuals are taking rapamycin (one, 2-6 mg dose/week) as a potential life-extending therapy.

However promising the treatment is, widespread clinical use of rapamycin has been held back by concerns about side effects associated with it.³² Studies aimed at defining optimal dose and timing, delivery route, and formulation will allow for benefits to be maximized while reducing these side effects.³²

The development of a specific regimen of rapamycin use that minimizes side effects may greatly enhance the rejuvenation of existing stem cells.

Some people want to wait to fully verify the safety profile of once weekly 2-6 mg doses of rapamycin. They are obtaining some of the benefits of rapamycin in a conservative way by increasing cellular AMPK activity.

Boosting AMPK lowers mTOR activity, which facilitates removal of cellular debris (via autophagy).^{33,34} As it relates to combating aging, activating **autophagy** appears to be a critical factor in the rejuvenation of our aged **hematopoietic stem cells**.^{11,23}

Reducing mTOR activity in order to optimize autophagy can be achieved via increasing cellular AMPK in the following ways:

1. Reduce calorie intake and, more specifically, avoid sugars, as well as all simple carbohydrates. High blood levels of glucose (and insulin) fuel mTOR activity.⁸
2. Brief periods (3-5 days) of significant calorie restriction (a near-fasting diet) per month have shown great benefits indicative of balanced mTOR,³⁵ but compliance is difficult.
3. Calorie restriction mimetics such as resveratrol with NAD⁺ restoration can be used to support SIRT1 and FoxO function.^{14,36,37}
4. AMPK activators can be used, such as the drug metformin and/or nutrients such as Gynostemma pentaphyllum extract^{38,39} and hesperidin.⁴⁰
5. Increased physical activity may meaningfully boost AMPK.⁴¹

INCREASE SIRT1 WITH RESVERATROL

The benefits of resveratrol for the health of cells have been widely documented in the research literature.

Resveratrol activates SIRT1 (and other sirtuins) inside cells, which is linked to many of the same longevity-enhancing benefits induced by calorie restriction.¹⁴

Based on our interpretation of emerging evidence, age-control may involve only a modest dose of resveratrol (around 100 mg/day), with sufficient NAD⁺ replenishment to enable sirtuin functionality.

Some people are now undergoing NAD⁺ infusions to significantly elevate their NAD⁺ blood levels. They follow up by taking 250-750 mg/day of the NAD⁺ precursor nicotinamide riboside to maintain higher NAD⁺ levels.

We anticipate that future clinical studies will reveal significant NAD⁺ boosting effects of patches, infusions, nasal sprays, and oral precursors.

In the meantime, to enable the regenerative potential of aging stem cells, we suggest initiating supplementation with the oral NAD⁺ precursor nicotinamide riboside using a daily dose of 250-500 mg, along with 100 mg of resveratrol and AMPK-activating compounds such as metformin, curcumin, green tea, hesperidin and gynostemma leaf extract.

By targeting known regulators of stem cell self-renewal and differentiation, we are proposing herein a unique hypothesis about how to rejuvenate your own stem cells.

This unified theory of the rejuvenation of our stem cells is highly dependent on homeostatic processes that are maintained by the following interrelated factors that can be targeted today:

1. **AMPK activation**^{25,42}
2. **Sirtuin activation**^{13,43}
3. **FoxO activation**^{6,44}
4. **NAD⁺ replenishment**¹⁵
5. **mTOR regulation** (via AMPK activation)^{4,24,42}

This unified approach may enable elderly individuals to rejuvenate their aged stem cells, which would then repopulate their senile tissues with fresh new functional (somatic) cells.

SUMMARY OVERVIEW

Adult **stem cells** lose their ability to repopulate tissues with fresh **functional cells**.

The result is systemic deterioration as vital functional cells degenerate and die.

Treatments that are already being used to slow aging, such as boosting **AMPK** and **sirtuins**, appear likely to facilitate stem cell rejuvenation.

Regulation of **mTOR** enhances the regenerative capacity of hematopoietic stem cells in aged mice.¹¹

mTOR is hyperactive in the bone marrow stem cell niche of aged mice.¹¹ Excess mTOR can be balanced by increasing AMPK.

Published data indicates that agents that boost NAD⁺¹⁵, **sirtuins**^{13,43} and **FoxO6**,⁴⁴ along with compounds that increase **AMPK**^{25,42} (and downregulate **mTOR**^{4,11}) may work together to **improve** stem cell function.

Metformin is an FDA-approved drug with potent AMPK-activating properties. It and other compounds that activate **AMPK** represent a potential option for induction of stem cell rejuvenation in adult stem cell therapies.

The application of these combined approaches in a clinical setting could induce systemic rejuvenation of damaged senescent tissues.

As it relates to those seeking to follow the experimental age-reversal techniques described in **Section 1** of this RAADFest 2018 special report, taking the steps described here in **Section 3** to reinvigorate your existing pool of stem cells could enable other regenerative therapies to work much better.

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Section 4: About the Society for Age Reversal

As it relates to research aimed at rejuvenating the elderly, there are certain advantages to funding projects through charities.

Other projects are more suitable for investment vehicles.

Charities are best suited to study technologies that have no patentable or other intellectual property status, and therefore provide little in the way of financial/commercial opportunity.

The human research that enables us to recommend the sequential order of intended age-reversal interventions outlined in **Section 1** of this document are mostly funded by charitable groups. These interventions include:

Step 1: Inhibit mTOR (using rapamycin)

Step 2: NAD⁺ restoration (using infusions/patches)

Step 3: Eliminate senescent cells from your body (senolytics)

There are regulatory issues with charities and investment funds that preclude them from performing all the roles needed to achieve our objective of gaining total control over biological aging.

As it relates to 501(c)(3) charities, there cannot be a substantial “private benefit” inuring to any individual who receives funding from the charity. In our view, this is not an issue when raising funds to test compounds like dasatinib, rapamycin, NAD⁺ and young plasma. There are, however, numerous regulatory hurdles mandated by the Internal Revenue Service that can sometimes impede the ability of charities to fund promising projects.

For rejuvenation technologies that have intellectual property and commercial upside potential, the best funding mechanism is investment vehicles. In order to accept investments, the company needs to fully comply with obstacles erected by the Securities and Exchange Commission, which necessitate significant expenditures for attorney and accounting fees, in addition to the effort spent on a myriad of time-consuming rules.

Our Public Benefit Group

In order to rapidly move our science forward, an essential element has been the creation of a hybrid charitable entity known legally as a “public benefit corporation.”

This enables us to investigate, validate, and recommend a variety of approaches to reversing biological aging without financial bias, and more importantly, without constraints that are not relevant to our group mission of saving lives lost each day to degenerative illness.

To investigate ways to reverse aging in humans, some members of our group donate to independent charities or make investments in companies that pledge to use most of the funds for clinical research (and not corporate overhead).

To assess whether a medical intervention is working, we once again rely on funding from philanthropic donors who personally want to see the science progress.

We maintain a publicly accessible website to disseminate information about upcoming clinical trials and newly published studies. We also report on results from ongoing human studies and provide interactive forums for members to freely exchange information:

www.RescueElders.org

Perhaps the most important element of our website is our accumulation of data from current studies and self-experimenters as to what may be working and what is not.

Our goal is to amalgamate baseline data on clinical measures/aging biomarkers and review follow-up results in order to generate statistically significant findings as to what degree of rejuvenation is occurring.

Data accumulation and analysis, we believe, offers the most efficient way of identifying safe and effective approaches to enable older people to regain their youthful health.

We encourage all those interested in keeping up with these emerging technologies to register on www.RescueElders.org and receive periodic emails about advances that we seek to independently validate, without financial conflicts that invariably pervade all emerging technologies.

To state this succinctly, our **Society for Age Reversal** does not care who succeeds in engineering regenerative medicine breakthroughs. We just want to assist wherever possible in ensuring that **someone** accelerates the sciences in a way that saves as many human lives from personal extinction as possible...and then communicate this to our growing list of members.

SOCIETY FOR AGE REVERSAL, INC.

- ◆ WE PROVIDE A PRIVATE ASSOCIATION PLATFORM
- ◆ WE ADVOCATE FOR AGE-REVERSAL RESEARCH
- ◆ WE HAVE NO CONFLICTS OF INTEREST

DONATE TO REJUVENATION RESEARCH

Human Age Reversal Project
3600 West Commercial Blvd.
Ft. Lauderdale, FL 33309

- Donations to this new charity 501(c)(3) are tax deductible.
- Contributions further human age-reversal research.
- Rejuvenation initiatives benefit most humans.
- Make it your philanthropic priority!

How You Can Accelerate Age Reversal Research

Everyone who participates in current and upcoming clinical trials, along with those who follow the interventions outlined in this document (with baseline and follow-up blood tests) is contributing to age-reversal research.

Those financially able can accelerate the science by investing in or donating to groups engaged in human age reversal initiatives. The Longevity Partnership Fund was established in 2017 for

people seeking to invest in regenerative medicine technologies. All funds are placed into an escrow account that currently holds \$650,000. The objective of the Longevity Partnership Fund is to support research projects that have intellectual property protection and/or offer a commercial upside.

All escrowed funds are 100% refundable any time prior to your making a written decision to invest in a **specific** regenerative medicine technology or business model. If significant funds are not soon raised by the Longevity Partnership Fund, all escrowed funds will promptly be returned.

OUR HISTORY OF FUND RAISING FOR AGE REVERSAL RESEARCH

	AMOUNT RAISED	AMOUNT REFUNDED	AMOUNT RETAINED
Age Reversal Therapeutics, Inc.	\$410,000	\$410,000	-0-
Longevity Partnership Fund	\$675,000	\$25,000	\$650,000

\$10 million needed to Accelerate Clinical Research

(About \$1 million from private donors used for recent age reversal research)

To review a brief application that enables you to place fully refundable monies into the Longevity Partnership Fund escrow account, log on to www.RescueElders.org/invest.

LONGEVITY PARTNERSHIP FUND INVESTMENT PROCESS

STAGE 1

- Commit escrow funds (100% refundable)

STAGE 2

- Identify IP-protected research projects

STAGE 3

- Specific projects funded only after investor approval

Escrowed Monies 100% Refundable

DONATING TO REJUVENATION RESEARCH

For those seeking to make a tax deductible donation, checks can be mailed to the following 501(c)(3):

**Human Age Reversal Project
3600 West Commercial Blvd.
Ft. Lauderdale, FL 33309**

We're all running out of Time!

Projected Year of Our Termination

	MALE	FEMALE	REMAINING YEARS
• Age 64	2037	2040	20 years
• Age 73	2030	2032	13 years
• Age 83	2025	2026	7 years
• Age 93	2021	2022	6 years

Urgent Need to Accelerate Human Rejuvenation Research

Source: Social Security Mortality Tables 2013/ https://www.ssa.gov/oact/STATS/table4c6_2013.html

DONATE TO REJUVENATION RESEARCH

Human Age Reversal Project
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- Donations to this new charity (501 c 3) are tax deductible.
- Contributions further human age-reversal research.
- Rejuvenation initiatives benefit most humans.
- Make it your philanthropic priority!

SOCIETY FOR AGE REVERSAL

“A public benefit group seeking to reverse human senescence”

- 1) Aging is at least partially reversible using existing therapies;
- 2) There is a growing interest in transforming this into clinical reality;
- 3) Those interested in age reversal want active (not passive) engagement;
- 4) The most efficient way to advance age-reversal research is via a private association of like-minded individuals.

Important Safety Notice

All suggestions in this document represent an amalgamation of opinions that are current as of the finalizing of this document (around Sept 10 2018).

The sciences of regenerative medicine, however, are evolving rapidly.

We therefore suggest that before initiating any of the interventions outlined herein, you log on to the website of a public benefit group called Society for Age Reversal to ensure you have access to the latest information on each intervention, including new caveats and amendments to dosing protocols. The website is:

www.RescueElders.org



Society for Age Reversal

A Public Benefit, Private Association

www.RescueElders.org