

ALCOR LIFE EXTENSION FOUNDATION

A Non-Profit Organization

# CRYONICS

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## CRYONICS VENTURIST CONVENTION REPORT

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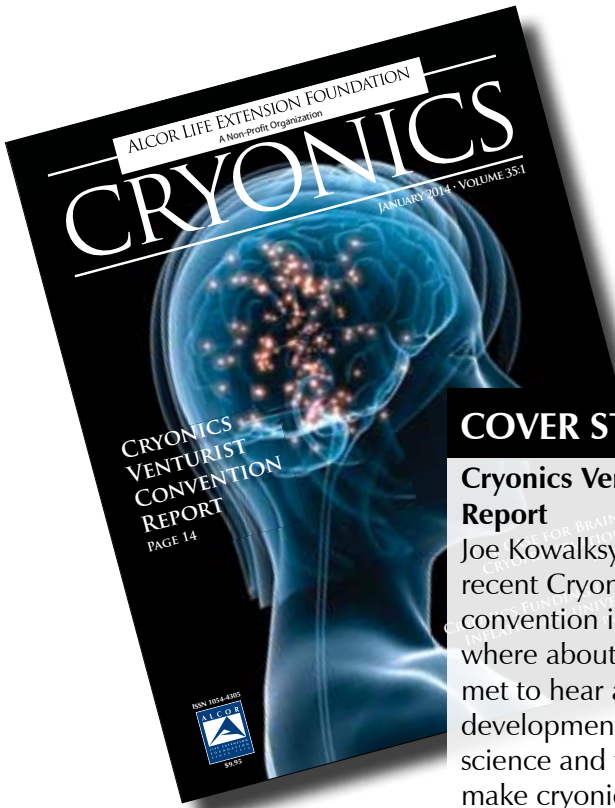
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# CRYONICS



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### Cryonics Venturist Convention Report

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## CRYONICS

**Editorial Board**

Saul Kent  
Ralph C. Merkle, Ph.D.  
R. Michael Perry, Ph.D.

**Editor**

Aschwin de Wolf

**Contributing Writers**

Aschwin de Wolf  
Chana de Wolf  
Rudi Hoffman  
Joe Kowalsky  
Mike Perry, Ph.D.  
Fouad Suleiman

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Address correspondence to:

*Cryonics* Magazine  
7895 East Acoma Drive, Suite 110  
Scottsdale, Arizona 85260  
Phone: 480.905.1906  
Toll free: 877.462.5267  
Fax: 480.922.9027

Letters to the Editor welcome:

[aschwin@alcor.org](mailto:aschwin@alcor.org)

Advertising inquiries:

480.905.1906 x113  
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Alcor provides a wide array of services for you the member, and the general public. We inform and educate, we protect and preserve, and we strive to remain at the forefront of cryonics technology.

Since its founding, Alcor has relied on member support to maintain its mission and attract new members. Your support, regardless of size, can provide a better future for all cryonicists. **Please act now.**

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Gifts have played a fundamental role in the cryonics movement since its earliest days. Dr. James Bedford, a man whose extraordinary vision led him to become the first person to be cryopreserved, and the first to make a bequest to a cryonics organization, exemplified the determination of the early pioneers of cryonics. We invite you to follow in his footsteps, and join the James Bedford Society.

The James Bedford Society recognizes those who make a bequest of any size to the Alcor Life Extension Foundation. If you have already provided a gift for Alcor in your estate, please send a copy of your relevant documents to Alcor's Finance Director, Bonnie Magee.

If you'd like to learn more about setting up a bequest, send an email to [bonnie@alcor.org](mailto:bonnie@alcor.org) or call 480-905-1906 x114 to discuss your gift. ■





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# QUOD INCEPIMUS CONFICIEMUS

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Photo: Cryo-Care Equipment Corporation at 2340 E. Washington St., Phoenix, AZ.  
Dr. Bedford's "home" in 1970 or 1971.

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## THE CASE FOR BRAIN CRYOPRESERVATION By Aschwin de Wolf

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Cryopreservation of just the head is as old as Alcor itself. In fact, some people identify Alcor with its “neuro-preservation” option. It is important, however, to recognize that the objective of preserving the head is really to preserve what is *inside* the head, i.e. the *brain*. While I am aware of (obscure) technical arguments that prefer head preservation over brain preservation for information-theoretical reasons, I suspect that no advocate of neuro-preservation is anxious about the prospect of having only his/her brain preserved in a *pristine* state.

This raises an important question that is not immediately evident to the general public. Why not just preserve the naked brain instead? I am aware of at least three major arguments against it and I think that these arguments are based on incomplete information or a lack of imagination.

*Myth 1:* The isolated brain is not a stable organ and will collapse upon itself in a jelly-like state if it is removed from the skull.

*Answer:* In human cryopreservation the brain would only be extracted at low temperatures which provide a lot more stability to the brain. In addition, in a good case the brain will also be loaded with a cryoprotectant and exist in a dehydrated state, which will provide even more stability.

*Myth 2:* Removing the brain from the

skull will damage the brain and will erase identity-critical information.

*Answer:* It is correct that morticians typically remove the brain with little regard for its ultrastructural integrity but there is no reason why a cryonics organization should engage in such traumatic brain removal. Safe brain removal protocols are technically possible and cryonics organizations have a strong incentive to develop and refine such techniques.

*Myth 3:* The skull is necessary to provide protection to the brain.

*Answer:* It is undeniable that the skull provides robust protection to the brain but from that it does not follow that a cryonics organization cannot design a long-term enclosure and maintenance method that provides strong protection of the naked brain, too.

I do not claim that brain preservation is equal in all respects to neuro-preservation. For example, extraction of the brain from the skull requires additional time after completion of cryoprotectant perfusion and during this time the brain will be exposed to high levels of cryoprotectant (strictly speaking, isolated brain perfusion is possible but this requires a very advanced surgical procedure). Global and local control of brain temperature during brain removal is also a challenge.

On the other hand, there are potential advantages as well. An isolated brain can be placed in the cryoprotectant to allow diffusion of the vitrification agent prior to cryogenic cooldown to compensate for any ischemia-induced cortical perfusion impairment. In fact, if perfusion is no longer an option, immersion of the (fixed) brain in cryoprotectant is the only means to mitigate ice formation during cryostasis. Another advantage is a decrease in long-term care costs (at least 50%), which allows for lower cryopreservation minimums.

But the most important advantage of brain preservation is that public perception and negative PR would be substantially lower than that with neuro-preservation. Even if the procedure were a little riskier (technically speaking) one could still argue that it is safer in general because images of cryopreserved brains do not risk the kind of visceral response that neuro-preservation triggers.

I cannot do justice to all the technical, logistical, and financial issues associated with brain-only cryopreservation here but the topic simply requires more study because cryonics organizations occasionally receive fixed brains, or patients with long ischemic times, for whom immersion cryoprotection could be superior to straight freezing. Brain cryopreservation does not exist as an option yet but it has been the reality for a number of patients. ■

## REMOVAL OF THE BRAIN FOR HUMAN CRYOPRESERVATION

By Chana de Wolf



### INTRODUCTION

For a change of pace, I'll be discussing a very practical topic in this installment of *Cooler Minds Prevail*: extraction of the human brain from the cranium. As Aschwin de Wolf has argued in his column *The Case for Brain Cryopreservation*, there are some generally unacknowledged advantages to cryopreserving just the brain rather than the entire head as is customary with Alcor's "neuropreservation" option. Such advantages include the ability to supplement cryoprotective perfusion with subsequent immersion of the brain in cryoprotectant to compensate for ischemia-induced perfusion impairment. Indeed, in cases of long-term ischemia, where perfusion is not possible, cryoprotection of the isolated brain by diffusion represents the only option for mitigating ice crystal formation.

The current protocol in such cases is to carry out what is known as a "straight freeze," or cryopreservation of the patient without administration of a cryoprotectant. As the name implies, a straight freeze results in complete freezing (i.e., ice crystal formation throughout all tissues of the patient). And while we do not yet know how difficult the damage caused by a straight freeze will be to interpret and repair, the conservative approach is to prevent as much damage from occurring as possible, thus making it easier for future technologies to infer the original state from the damaged state.

In cases where the ischemic period is too long to conduct cryoprotective perfusion

(>48 hours), but not long enough for "information-theoretic death" to occur, cryoprotective diffusion of the brain at low temperature represents an interesting theoretical alternative for a straight freeze. Furthermore, because chemical fixatives penetrate tissues more quickly than cryoprotectants, the addition of diffusion fixation to stabilize the brain prior to cryoprotection may also be an option for severely compromised patients.

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*"...in cases of long-term ischemia, where perfusion is not possible, cryoprotection of the isolated brain by diffusion represents the only option for mitigating ice crystal formation."*

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Lastly, it cannot be denied that there are space-saving benefits to storing brains rather than entire heads. A mold may easily be designed to provide adequate support for the brain and also to minimize the amount of storage space required. It has been argued that this would result in a roughly 50% decrease in volume associated costs for long-term care, which would translate into lower cryopreservation minimums. Additional space- and cost-savings may be realized if whole-body members who would otherwise face a straight freeze opt

for cryopreservation of the isolated brain under such circumstances.

So, with those arguments in mind, let's get down to the nitty-gritty. What is the best procedure for removal of the human brain for subsequent cryopreservation?

To answer this question, I have drawn from three primary sources. First, ubiquitously available video demonstrations of dissections of the head and removal of the brain using human cadavers; second, a personal friend who is a forensic medical examiner; and third, literature in brain removal for human plastination.

While all three approaches have the same ultimate goal—to remove the brain—they vary somewhat according to the reasons for removal. In general, removal of the brain for autopsy and anatomical instruction is performed quickly but with little regard for avoiding physical trauma to tissues. For purposes of plastination, however, in which the goal is to preserve specimens in as close to their natural conformation as possible, greater care is taken to minimize damage from surgical instruments and the physical force of removal. A combination of approaches aimed at minimizing physical trauma *and* duration of the procedure would constitute an optimal method for removal of the brain for cryopreservation.

### MATERIALS

In addition to basic surgical instruments such as scalpels and forceps, the devices used for removal of the brain range from basic hand- and power-tools to specialized



Figure 1. A cross-chisel, aka "The Virchow skull-breaker."

surgical instruments. The most necessary are: (1) a circular or an oscillating saw, such as a Stryker bone saw; (2) a cross-chisel, aka the "Virchow skull breaker;" and (3) a brain knife, designed to cleanly slice brain tissue and to sever nerves in hard-to-reach areas.

While it is true that the "fresh" (as opposed to fixed) room-temperature brain is unable to maintain its shape upon removal from the cranium, it is important to remember that in cryonics scenarios the brain would only be extracted at low above-freezing temperatures, which "firm up" the tissue and provide stability. In good cases, additional stability may come from dehydration as a result of cryoprotective perfusion prior to removal. Additionally, a cranium-shaped vessel may be designed which will support the brain properly after removal and help to maintain its form during long-term care.

## METHODS

It is important to remember that all surgical procedures are carried out with the patient's cooled body and cephalon packed in water ice to maintain the patient at or below the target temperature for surgery. Temperature is monitored continuously using thermocouples attached to data acquisition devices. Additionally, cold saline or other chilled physiological

solution should be used in conjunction with any heat-producing instruments, such as the Stryker saw. Keep squirt bottles of saline on hand and packed in ice when not in use. Spray the instrument blade with chilled solution as it cuts through bone to reduce heat and minimize dust.

In removing the brain, the skull is first exposed by separation of the scalp, circumferentially around the cranium at a level about one finger's width above the supraorbital margin and the ears. The use of a piece of string around the head is useful in maintaining the cut at the appropriate level from start to finish. A periosteal elevator is used to separate the loose areolar tissue of the

scalp from the cranium and the tissue is then removed, exposing the cranium.

The cap of the skull is cut along the same circumferential line as the scalp with the aid of a circular saw or an oscillating saw such as a Stryker bone saw. Because skull thickness varies, caution must be exercised. The use of a small diameter blade (~5 cm) in concert with a plate limiting the depth of the cut to 0.4 cm is helpful in preventing the blade from traumatizing the brain, but it cannot be relied upon completely. Ultimately, the depth of the cut must be carefully regulated by hand to prevent damage to underlying structures.

Once the cut is complete, the cranial cap may be removed with careful use of a cross-chisel, or "Virchow skull breaker." This is accomplished by wedging it between the skull and the dura at approximately 2 cm intervals around the circumference of the cap. The goal is to separate the adhesion of the dura from the skull without using the brain as leverage. Once this is done, the cap may be pulled away to expose the dorsal surface of the brain.

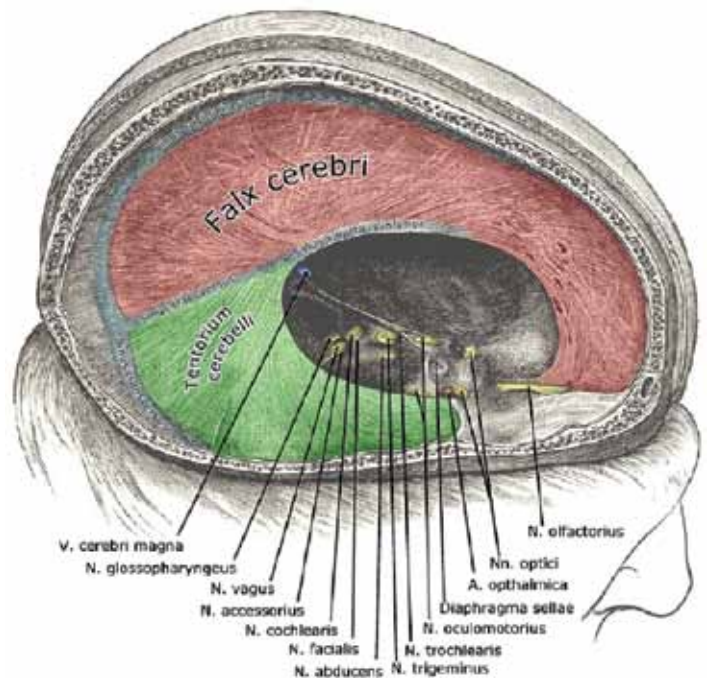


Figure 2. An illustration of the anatomical locations of the falx cerebri, tentorium cerebelli, olfactory nerves, optic nerves, and twelve cranial nerves.



It will now be easy to see that the brain is covered by the outermost meningeal layer, the *dura mater*. The dura is a thick, elastic membrane encasing the brain that must be removed to observe and access the brain itself. To do so, use surgical scissors to cut the dura along the cut of the skull. The dura may then be reflected upward toward the midline of the brain, where it reaches into the depths of the medial longitudinal fissure. This arched fold of dura mater is known as the *falx cerebri* and facilitates stability of the two brain hemispheres. Along this plane, the dura is attached to the skull anteriorly at the ethmoid bone. Additionally, several small veins exit the dura along the midline. To remove the dura from the longitudinal fissure, one must sever the anterior attachment and cut away the venous structures of the sagittal sinus until reaching the area of the occipital lobe, where the *falx cerebri* meets and connects with dura at yet another orientation known as the *tentorium cerebelli*. There are lots of dural reflections in this area, making separation difficult. Just remove as much dura as possible.

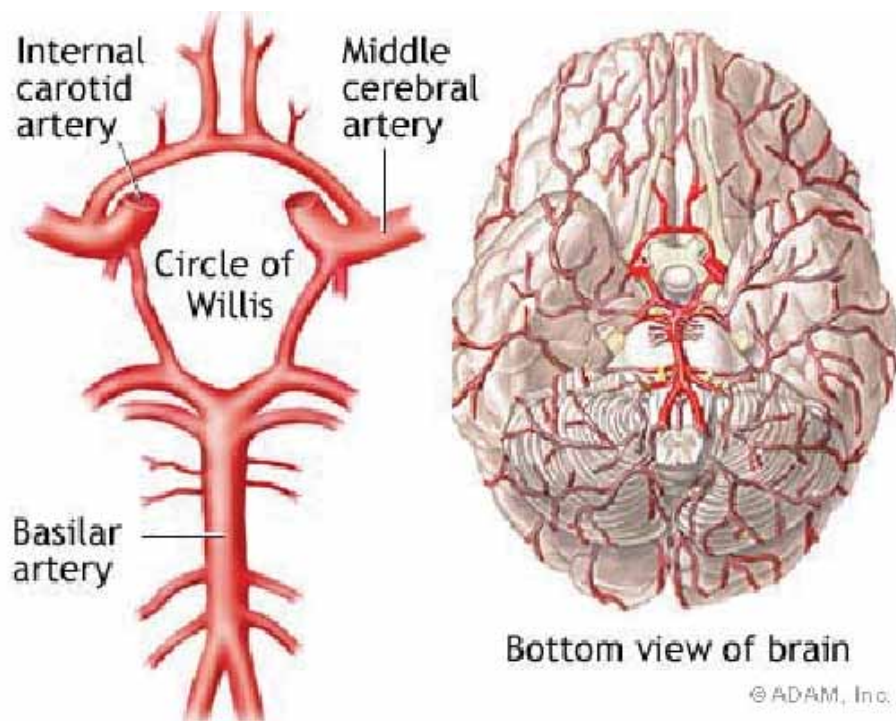


Figure 3. The basilar artery is formed where the two vertebral arteries join together at the base of the skull. It can be used to suspend the brain in solution during diffusion protocols to prevent compression and deformation.

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*“It is important to remember that all surgical procedures are carried out with the patient’s cooled body and cephalon packed in water ice to maintain the patient at or below the target temperature for surgery.”*

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The soft, filmy layer of *arachnoid mater* covering the cortex is now visible. During normal physiology, cerebrospinal fluid flows underneath the arachnoid. Interestingly, injection of formalin in the subarachnoid space 20-24 hours prior to brain removal is sometimes recommended in the plastination literature, through “injection” (perfusion) of formalin prior to removal and diffusion fixation. Both methods result in shorter time to completion of fixation than diffusion fixation alone.

Now a “wedge” cut is made in the skull

on either side of the occipital bone down to the *foramen magnum*, which is the hole at the base of the skull through which the spinal cord exits the vault of the skull. Removal of the resulting wedge of bone reveals the cerebellum, covered in dura which must again be carefully removed.

Dura also covers the spinal cord, and if we would dissect the back of the head and neck we would find that it is continuous with the cranial dura. It would take longer, but it is entirely possible to do this dissection in order to remove the entire brain *and* a portion of the spinal cord carefully and completely. Where a more extensive dissection is not advisable, the spinal cord is severed as low as possible given its accessibility.

To remove the brain several nerves must be severed, including the olfactory nerve, optic nerve, cranial nerves, and (if removing some portion of the spinal cord) the spinal nerves. Again, depending on how much anatomical knowledge the practitioner has, and how much time one is willing to expend, these may be made

more accessible and cut cleanly in order to remove the brain (and spinal cord) in one continuous piece.

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*“The greatest potential risk for trauma to the brain is that of damaging the underlying tissues when cutting through bone, particularly when using a circular or oscillating power saw.”*

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Removal of the brain is performed manually, with one hand supporting the occipital lobes while the other is used to free the brain from the cranial fossae (i.e., depressions in the cranial vault which house the various lobes of the brain). In this way, one may pull the anterior brain (frontal lobes) upward lightly to elevate and then sever the olfactory nerves from the frontal base of the skull. Next the optic nerves



may be cut, followed by the internal carotid arteries and the oculomotor nerves (i.e., cranial nerve III). Then the fingers may be worked underneath the temporal lobes in order to free them from their cavities, making the tentorium visible.

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*“Unlike more intricate surgeries like cannulation of vessels for perfusion, brain extraction requires little more than adequate knowledge of cerebral anatomy and the ability to use surgical tools in a controlled fashion.”*

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Both sides of the tentorium may be cut in a mediolateral direction along the petrous portions of the temporal bone using a long, pointed knife. The cerebellum can then be gently pushed back and away from the temporal lobes enough to observe the spinal cord where it passes through the foramen magnum. The spinal cord is then transected as far back as possible in the spinal canal. Supporting the cerebellum, the brain and remaining spinal cord can now be gently lifted out of the cranium in one piece.

The greatest potential risk for trauma to the brain is that of damaging the underlying tissues when cutting through bone, particularly when using a circular or oscillating power saw. A depth-limiting blade may be used to reduce this risk, but ultimately cutting through the bone closest to the brain must be performed manually and with great care. Additionally, it is important to use gentle but controlled force when manipulating the brain with the hands so as not to rip or tear nerves or other structures.

#### **LONG-TERM CARE OF THE ISOLATED BRAIN**

Congratulations, you’ve just removed the brain of a cryonics patient. Now what?

As discussed in the introduction, the brain in question may or may not be

cryoprotected yet, depending on the particular circumstances of the individual case. If the patient suffered ischemic injury and full or supplemental cryoprotection is required, the brain should be transferred to a container of cryoprotectant solution and the appropriate protocol for diffusion cryoprotection followed. Generally, stepped increases in cryoprotectant concentration at low temperature over a period of months is necessary for equilibration of the entire brain prior to cryopreservation. Alternatively, brain ultrastructure may be stabilized by immersion of the brain in a fixative solution prior to cryoprotection. Either way, the brain may be suspended in solution by a basilar artery in order to prevent compression and deformation of the brain as might occur if it is placed on a flat surface.

Once cryoprotection is complete, the brain may finally be transferred to a cooling box for cryogenic cooling prior to long term care. As mentioned, the procurement of a mold to support and protect the brain is advisable and should bring about significant cost-savings, too. Exactly such a device, called a “hedgehog mold,” is described in the early human plastination literature which was used to maintain the shape of the isolated brain for several

hours prior to fixation. Obviously, there is nothing preventing us from developing something similar to encase cryonics patients’ brains prior to immersion in liquid nitrogen for long-term care.

#### **CONCLUSION**

It may be easier than we think to provide cryonics patients with better alternatives to a straight freeze. With practice, removal of the human brain from the cranium can be done quickly (within 30 minutes) and with little physical trauma. The equipment required to carry out such a procedure is minimal, relatively inexpensive, and easy to use. Unlike more intricate surgeries like cannulation of vessels for perfusion, brain extraction requires little more than adequate knowledge of cerebral anatomy and the ability to use surgical tools in a controlled fashion.

Lastly, removing and cryopreserving a brain would help reduce negative public perception of neuropreservation. Most cryonicists have experienced the disgust that the image of a cryopreserved head seems to conjure up for many people. We may benefit significantly from the less visceral responses to be expected when discussing the preservation of isolated brains. ■

### **ALCOR ISOLATED BRAIN PATIENTS**

There are a total of 9 brain-only patients currently in long-term care at Alcor:

- A-1171** | Michael Friedman | 01 Jun 1992 | Brain and rest of body stored separately
- A-1401** | 01 Feb 1993 | Brain
- A-1487** | 21 Sept 1993 | Brain | Transferred to Alcor December 16, 2008 | Accepted as Alcor Patient November 19, 2010
- A-2510** | 27 June 1998 | Brain | Transferred to Alcor December 16, 2008 | Accepted as Alcor Patient March 1, 2011
- A-1215** | 25 Aug 1999 | Brain
- A-2509** | 1 May 2002 | Brain | Transferred to Alcor December 16, 2008 | Accepted as Alcor Patient September 5, 2010
- A-1194** | 29 Aug 2002 | Brain
- A-2077** | 05 Dec 2003 | Brain
- A-2264** | 20 Sep 2006 | Brain



# CRYONICS FUNDING IN AN INFLATIONARY UNIVERSE: AN ANALYSIS OF ONE POSSIBLE SOLUTION

By Rudi Hoffman, CFP, CLU, ChFC

**M**onetary or price inflation seems to be built into the fabric of twentieth century economics as inexorably as inflation is built into the structure of the universe. Both seem to be simply part of the facts of life, and we as humans with ambitions beyond our current station need to find ways to deal with these facts.

Numerous stories abound dramatizing the effects of monetary inflation. For the purpose of this article, let's stay focused on the cost of cryopreservation, a medical intervention with tremendous potential which can only be realized if a number of variables work well for us, including the financing piece.

## AN ANALYSIS OF INDEX UNIVERSAL LIFE

Compared to the fields of endeavor which current consumers of cryonics services are engaged in, such as artificial general intelligence, biotechnology, advanced physics, software engineering, and the (almost) intractable field of ending aging, life insurance and finance is relatively straightforward. If you are reading this article, the odds are very good that you are both smart and highly educated, and can handle a reasonable amount of nuance without breaking a sweat. In fact, you may find learning about this downright fun!

We will be analyzing a relatively new product offered by the life insurance industry called an "Index Universal Life."

You may be familiar with the basic concept of a Universal Life policy. Let's take a quick review.

## UNIVERSAL LIFE: THE BUCKET OF CASH METAPHOR

We can think of putting money into a Universal Life (UL) policy as putting money into a bucket of money made available by the life insurance company. From this bucket the insurance company pulls a relatively tiny dipper, which is used to pay the internal "cost of insurance" each month. The actual "cost of insurance" is an internal risk cost and in the early years of a policy is generally quite low, enabling the cash in the bucket to grow and compound.

The cash in this "bucket of money" grows due to the influx of money, and the interest or growth credited on this money.

So, the simple variables are 1. The amount going into the bucket, 2. The growth credited on this money, and 3. The cost of insurance being withdrawn from the bucket.

When UL illustrations are made, they generally, and in some cases by law, provide at least two illustrated scenarios of these variables. Some UL policies also

have a guarantee rider, that protects the death benefit even if the cash value falls to zero, which could be perceived as a helpful feature for cryonicists who want to know that their policy will pay the death benefit without fail regardless of market conditions.

One of these illustrations will be showing how the policy will work using several "worst case" assumptions.

The other, generally the rightmost three columns on the year by year illustrations page, assumes the CURRENT or actual interest rates and internal cost of insurance being charged by the insurance company.

Pretty straightforward so far, right? Here's where it gets a bit nuanced.

## HEY, I READ A WALL STREET JOURNAL ARTICLE SAYING THAT SOME OLDER UNIVERSAL LIFE POLICIES ARE A DISASTER.

In November of this year, 2013, the Wall Street Journal had not just one but two separate articles informing their readers about a legitimate but not well known financial train wreck. The articles both accurately depicted what is happening to Universal Life policies which were sold back when the interest rates on fixed investments were not just higher, but in some cases much higher. UL policies sold in the 1980s were often illustrated at 12%

or more growth on the cash value. And, with the interest rates continuing to be at historic lows, these policies are lapsing, or requiring more money to be put in them.<sup>1,2</sup>

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*“You need to immediately call the company that issued the policy and ask for an “In force illustration” which will show you how the policy will perform under the current interest rate and contribution scenarios.”*

---

If you have one of these older policies, you own a ticking time bomb. You need to immediately call the company that issued the policy and ask for an “In force illustration” which will show you how the policy will perform under the current interest rate and contribution scenarios. It may help to have an expert run an analysis of your policy to see what the reality is. This policy review is certainly a good idea to have done every five or ten years or so regardless of when your policy was issued.

There is good news, however, especially if you are healthy and insurable. This brings us to a way you can structure a policy that will last as long as you do, with an increasing benefit the longer you live.

### **THE PAST, PRESENT, AND FUTURE OF UNIVERSAL LIFE POLICIES**

Do you like history? Can you see yourself on a timeline stretching from the past to the present where you are reading these words and continuing to the future? On this timeline, if we put the OLD style Universal Life policies, we have some UL policies which could lapse...the policy could “die” before you do! These were often sold using HIGH INTEREST projections and did not have any underlying “guarantee riders.” If you have a policy more than ten years old you may have the “obsolete dinosaur” UL model, and you should get it checked to see how it will perform using more accurate current interest rates.

If you have a NEWER model of UL, it may have a guarantee rider to guaranteeing coverage to age 120. But, what if you live PAST age 120?

The future of Universal Life is what we move to now...a policy which can grow and help address the inflation question.

### **HOW INDEX UNIVERSAL LIFE WORKS**

What if you could obtain most of the “upside growth” of the stock market, without taking the risk of your account going down, the “downside risk” if the market turned south and plummeted?

The search for this “best of all possible worlds” and the evolutionary pressures of the financial industry has enabled the emergence of a new financial creature. This creature combines most of the upside growth of the market when times are good, but manages to avoid the downside risk of major market pullbacks. Instead, it simply takes a nap for a year, has zero growth, but zero loss, and waits for the market to start going up again.

This creature has emerged after decades and centuries of evolution of financial products, responding to enormous pressure from the free market system. First introduced in 1998, this creature has been evolving nicely, with more and better consumer protections built in, multiple indices to utilize for growth options, and lower internal costs enabling streamlined growth of internal cash values in the policy. This new creature is called “INDEX UNIVERSAL LIFE INSURANCE.”

The cash value inside the life insurance policy has options that the policyholder can decide on, with percentages of the cash value defined in each.

One or more of these investment options enables that section to have index related growth. This means that while the dollars are not invested directly in a stock market index like the S&P 500, the insurance company credits a growth to your account based on growth or change in this index.

### **WHAT DOES THIS MEAN TO ME AND MY POLICY?**

In the case of at least one cryonics friendly insurance carrier, here is what this means

to you and me as consumers. If the S&P 500 goes up in a given year, your account is credited with up to 12 percentage points.

If the Standard and Poor’s 500 index goes down, nothing is credited to your index account...but it does not go down either. So, we are basically credited with something between zero and 12%, depending on what the S&P 500 does.

Answering the obvious question, “How is this sustainable by the insurance company?” could fill a book. The short answer has to do with the economy of scale that insurance companies have, as well as the ability to buy options on the S&P 500 index that go up if the index goes up. Plus there are some profits on the life insurance part of the program. And, there are built-in penalties that discourage people from pulling their money out in the early years of the program. In short, it is a financially transparent product, in that we can see how the simple parts work, and also how the insurance company can rationally make it available.

We will show an example to see how this works. The example assumes a male 32 years old—let’s call him Joe Visionary—applies for and obtains an Index Universal Life policy at preferred non nicotine using rates. The policy is an Index Universal Life policy for a face amount of \$300,000. Joe is paying 300 dollars a month into this plan.

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*“What if you could obtain most of the “upside growth” of the stock market, without taking the risk of your account going down, the “downside risk” if the market turned south and plummeted?”*

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Using the rate that a 25 year backtesting generates with the current cap and cost of insurance, Joe not only has the \$300,000 of life insurance which increases each year, but at age 62 he has \$287,000 in cash in his policy. And his death benefit is \$587,000. At age 92, the cash value...and the death



benefit...have grown to over \$2 MILLION. If Joe needs cryopreservation at 92, even if he has never increased his 300 bucks a month, 2 million of those inflated dollars may certainly help.

Let's pause and think about this a minute. Joe has put \$3,600 a year into this plan, and has enjoyed an immediate life insurance benefit with an increasing face amount paying the \$300,000 or more to fund his cryopreservation and help take care of his loved ones. Over thirty years, how much has he put into the policy? \$3,600 times 30, which is \$108,000. If he wishes, he can pull a tax free amount from his policy of \$287,000, and still maintain the policy. And if cryopreservation costs or his need for cash and a certain death benefit continue to rise, his policy grows to over TWO MILLION DOLLARS at his age 92.

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*“There is no magic bullet that fixes every concern about proper cryonics funding. But a well-funded Index Universal Life is certainly a program rationally minded and highly analytical cryonicists may want to consider.”*

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### SO, WHAT ARE THE TRADEOFFS?

We intuitively know that there must be tradeoffs in any decision. What are they with Index Universal Life? What are the risks?

Well, remember we talked about the “worst case scenario”? When you look at an IUL illustration, you will see a section that shows what happens in a worst case scenario. And, in Joe's case, this means that his policy shows zero value—cash value and death benefit of zero—at his age 75, some 43 years into the program. Should this worry us?

Probably not. Here is how the “guaranteed” side of an IUL is determined. It actually assumes FOUR worst case scenarios...occurring every year between now and the rest of your life. These four

are 1. That the stock market goes straight down, decades in a row. AND 2. The insurance company goes to their maximum internal cost of insurance, which would only happen if all companies were doing this due to a worldwide pandemic or war AND 3. All internal costs of the policy go to the maximum AND 4. You and your broker see these things occurring year after year, decade after decade, and do nothing to adjust the policy so it delivers as needed, or redirect the premiums into a different policy or company.

It can be fairly observed that the likelihood of all four of these occurring is small. And, more importantly, if the stock market drops relentlessly for the next 43 years, and we have worldwide pandemic and/or wars, the odds of a good cryopreservation are certainly low.

### WHAT IF YOU ARE 52 INSTEAD OF 32?

Joe's father John Visionary is 52. He can invest \$500 a month into a life insurance and savings plan. This gives him a death benefit of \$300,000 which constantly rises each year, a reasonable expectation of over \$339,000 in cash and a death benefit over \$639,000 at his age 82.

There is no magic bullet that fixes every concern about proper cryonics funding. But a well-funded Index Universal Life is certainly a program rationally minded and highly analytical cryonicists may want to consider. ■

### ENDNOTES

1. Universal Life Policies Hurt by Low-Rate Era - WSJ.com
2. Is Your Life-Insurance Policy at Risk? - WSJ.com

**Rudi Hoffman,**  
CFP, CLU, ChFC is  
CEO of Hoffman  
Planning and  
is a Certified  
Financial Planner™  
professional.

He specializes  
in cryonics life  
insurance/planning and retirement  
planning without risk. He has more  
knowledge about cryonics insurance,  
and has sold more insurance for  
cryonics purposes than any insurance  
agent in the world.



# MUSIC

## and the Fear of Death

By Fouad Suleiman



In this article I would like to address the ways we, as humans, deal with the phenomena of death through music. I am a musician who has published his first music album not long ago, then made a career change to film directing, though, the musician part in me is still alive, in fact, there isn't a day that passes by without me listening to at least ten songs on YouTube. I know that it sounds exaggerated, but it's the truth. I will be thirty six years old in February, and I'm an Alcor member already for more than two years, and honestly, I have been living a more confident life after I signed with Alcor, knowing I might survive the largest devil, which is death.

When I made my first academic degree in Psychology, as a part of the Sociology class, they taught us that music is a social ritual, along with being a meditative pleasurable experience, and I agree with that analysis. We see bands now that created their own cult like fans, like "Lady Gaga" for example, and that represent a certain fashion and ideology, and because we are living today in what I call "a market of ideologies" we choose our ideologies and the culture that surround it, and music is a cultural product that could support a way of life or an ideology.

I would like to elaborate on the subject of the public talk about death. It seems to me that discussing death in family dinners, or on radio, or T.V., or even in film, music, and literature, is somewhat of a taboo, similar to sexuality. We don't often hear people talking openly about their fear of death, just as they don't openly talk about their sexual fantasies. Religion, in contrast

to other kinds of literature does speak of death, and an afterlife, and it deals with the fear of death on a mass collective scale. Maybe that fact contributes in making religion very popular and relevant. Religions played a major role in humanity's growth, and in its understanding of morals, life and death. Whether religion is realistic or unrealistic in its solutions to the problem of death, does not contradict that it is the only source of literature whose style and content deal with death and does not simply sweep the mass fear of death under the carpet. Unlike other literature that deals with death, religious literature addresses the readers directly and claims to speak the truth.

Music, being not a religion or an ideology by itself, but more of a representative of a way of thought or ideology, it, just like other non-religious cultural products, relates to death, but mostly keeps it out of the songs, for most songs are about love, situations, wisdoms, philosophy and so forth. Still, if we look, we will find songs that relate to death, for example, the songs "Forever Young" by Alphaville, "Live and Let Die" by Guns and Roses, and "Fear of the Dark" by Iron Maiden. There is even a band called "Dead Can Dance." In fact, whole styles of music such as Metal, Heavy Metal, Punk, and the like relate to death more often than not, and to fear in general.

In many situations music is very relevant to our memory. We remember things according to a certain song: we might link a song to a certain trip, vacation or period in our lives, or even death. For example the song "It's So Quiet" by Bjork, always reminds me of an occasion that occurred

when I was twenty eight. I joined a peaceful march then, and when we reached a certain spot, we all stood very quietly. Then, as if on cue, from a hot dog stand's amplifier the song "It's So Quiet" started playing, a thing I saw as funny at the moment.

Because music is a collective ritual, music dealing with death can help us as a society of humans deal with death on a more open and public scale, therefore giving us a way of dealing with our fear, by breaking this taboo of silence and finding ways to face it. Now as I sip my tea I already think of what's the song I want to play on YouTube next. And I guess maybe I'll play "Forever Young" as a celebration of life and the ongoing hope of living longer and happier. ■

### Fouad Suleiman

is a film director and artist in general; who has directed his first documentary entitled "The Unfolding of Presence," a



documentary dealing with the artistic scene in Leipzig Germany. He has published 2 fiction novels in the Arabic language, and released a first music album entitled "Finas." He has acquired his first degree in Psychology from the University of Haifa. He is 36 y.o., born in Haifa, Israel, and a part of the Palestinian minority in Israel. He is living currently in Haifa, Israel and continuing to create films, music and literature.

# Venturist Society Cryonics Convention October 25-27, 2013 A Report by Joe Kowalsky



I recently had the pleasure of attending the Venturists conference in Laughlin Nevada, including the opportunity to present talks on both CI and IS.

Although “thank yous” typically appear at the end of an article, they are the first thing that come to my mind about these fine people and I think that they deserve top billing: Thank you (from all of us) to David Pizer, Mark Plus, all of the other members of the Society for Venturism and others who worked to make this conference run so smoothly that it seemed to run itself! Thanks to Don Laughlin who made his hotel available for the conference. Thanks to the varied and interesting presenters. And thanks to everyone who came to the conference and made it what it was.

In total there were approximately 100 people in attendance, of whom about 1/2 are Venturists. About 60 Alcor members were present; some 20 Cryonics Institute members; and perhaps 10 from other organizations such as KrioRus and the American Cryonics Society. In addition to Cryonics organizations’ members, there were representatives from the SENS Research Foundation (“Strategies for Engineered Negligible Senescence”), the Life Extension Foundation, 21st Century Medicine, the Timeship Project, Suspended Animation, Inc., Advanced Neural Biosciences, Nutrition World, the Church of Perpetual Life and probably 5-6 other groups. (As you can see if you do the math, there were some who are members of more than one organization.) Most of

the groups had a representative presenting at the conference and had a table with literature, as did C.I. There were people at the conference in attendance from (or who were originally from): Russia, England, Lithuania, Japan, China, Sweden, Germany, the Netherlands and the United States.

The Society for Venturism is an interesting group of very nice people. To quote from their website:

*Venturism is a ‘secular religion’ in the sense that the Praxis might be considered one, but very minimalistic and targeted specifically to the needs of the cryonics community.*

*One of the things it does is to help cryonicists optimize their suspensions, by giving them “religious” grounds to object to autopsy (which would greatly harm their chances of repair and reanimation). Another thing it has done is fundraising for cases where last-minute funding was needed for a terminal patient who could not obtain life insurance.*

*The Society does not preach the existence of God or miracles, but does have two principles that members must agree to:*

- 1) To advocate and promote the worldwide conquest of death through technological means,*
- 2) To always try to do what is right.*

*In addition, members agree to try and help fellow members to be reanimated if they should be reanimated first.*

They created, in this conference, a forum for the many different cryonics and cryonics related groups that generally work on their own. Meeting like this was encouraging to

me and also gave me food for thought as I heard the many other ideas that people have. Most significantly, **I felt that everyone really wants this to work.** When you work with a particular organization, there can be a feeling of isolation—sometimes even a feeling that others are working for their own best interests rather than that of cryonics in general. This meeting gave us all an opportunity to hear from each other professionally, and to hang out after hours. Everyone there was good natured, courteous, thoughtful, and kind. These are people that I enjoy hanging out with. And whom I trust.

The following are my summation of the comments of the presenters. These do not necessarily represent the views of IS or of me. I have tried to be accurate, and apologize if I have made any errors or if my synopses left out items of significance.

Due to a later-than-expected flight and other slowdowns on the day I arrived, October 25, I missed the orientation meeting, buffet luncheon and the first three speakers: Cairn Idun, Mike Perry and Ben Best, who spoke about Peaceful Tolerance, the History of Venturism & Creating a Cryonics Hall of Fame, and the struggle to have cryonics represented accurately on Wikipedia, respectively. I read a synopsis of Cairn’s talk and found it a hopeful discussion of her perception that human culture is moving towards peaceful tolerance. Mike’s talk and Ben’s talk both got good reviews from others with whom I spoke. I’m sorry that I missed them.



## THE AFFORDABLE IMMORTALIST, MAYBE YOU CAN DEFEAT DEATH AND TAXES

Rudi Hoffman

I did arrive in time to hear the inimitable Rudi Hoffman in eye-burning fluorescent blue suit jacket and highlighter pink gym shoes discuss how insurance can cut the cost of cryonics down to size!

He mentioned Arthur C. Clarke's amicus brief in the Alcor case in which Clarke said that Cryonics will probably work. He spoke about being a good human being; the costs of Alcor (\$80,000 for neuro or \$200,000 for whole body) and for CI (\$28,000 for whole body; an additional \$82,000 for Suspended Animation and Air Ambulance services, if chosen.); and that we should focus on Cryonics not as pseudo-science, as some do, but rather as proto-science.

He then went on to discuss that there is a lot of focus on Cryonics itself but that there needs to be more focus on funding so that people will realize how affordable it can be with the use of life insurance. He mentioned that death benefits are almost always tax-free; that sometimes one can get low cost loans while alive (with no tax issue), that they are creditor protected, that there are policies which waive premiums if one becomes disabled and that some have accelerated death benefits in the case of terminal illness.

### CRYONICS AND CULTURE:

Dan Davis, MSgt, USAF

Dan's talk was on cryonics and culture: Every idea is strange at first and society does not use logic to decide which ideas are best.

"Why do things have staying power?" he asked. Why do people get involved and stay involved? He looked at a few examples. Christianity: each person has contact with God. The United States: each person has a say in government. Space: it took off when it became a matter of pride to us. From this we should learn that when speaking about cryonics, we should be humble, loving, and not talk a lot about ourselves.

Dan's premise is that perception is reality—and that makes policy. Right now we have problems that come from being a small group. There are also problems that

come with being big. (But we would like the opportunity to deal with those!) It is difficult to be on the "cusp of humanity. Only in memory are most past heroes heroes." We see this in science, art, and elsewhere.

Here are some more of his thoughts:

- We do not want to be the "arrogant cryonicists." No one likes arrogance and that won't get the politicians, scientists and cultural icons on our side.
- It is a good idea—from a societal or evolutionary standpoint—to hold ideas at arms length until proven. Otherwise we would have done lots of stupid things!
- It is not science that convinces us to do things, it is such things as patriotism and ego. (Examples that support this thesis include the travels of Columbus and others from Europe to the Americas, and going to the moon.)
- Our decision-making process is at first emotional, and then backed up with logic and with what "other people" think. (And those "others" are our social, generational, or other circle in which we feel that we are a part.)
- A video has just as much power as doing something in real life.
- There is a "tipping point"—when people latch onto a concept it happens quickly.
- And finally: What are the emotions that matter most in decision making? Avoiding pain and providing pleasure. Cryonics does both. When it stops being "weird", it will grow quickly; exponentially.

To move this process forward, we should validate others: if you want honey, don't kick over the beehive.

He went on to state that cryonics is compatible with multiple religions and philosophies.

In conclusion: We have seen throughout history that forced involvement in a cause

or movement does not work for any length of time. If a culture, activity or project is to be permanent, people have to want it. To make people do something for any length of time, they have to want to. We must think about what other people want. He lauded the concept of "peaceful tolerance" which Cairn Idun discussed and took it one step farther. He believes that we should work on peaceful convincing. And finally, he noted that there are no "barriers to entry" for cryonics. This is not an ark of limited size. The powerful do not have a stranglehold on this.

### A BIOLOGIST'S VIEW ON WHY CRYONICS IS FEASIBLE:

Aubrey de Grey, PhD

At 8 PM Aubrey de Grey, PhD, of the SENS Research Foundation spoke on "A Biologist's View on Why Cryonics is Feasible." To quote the summary of his talk: "*Many non-biologists presume that cryonics must be fantasy because it is not mainstream. This is a reasonable inference for those who do not appreciate how appallingly balkanized biology is, with almost all biologists being expert in only a very narrow area and having no time to study other areas. Since a field's reputation for infeasibility is a reason not to pay attention to it, this parlous situation is self-fulfilling. In this talk I will seek to rectify it.*"

There are similarities between cryonics and his work: there are advocacy challenges. Why don't people sign up?

1. There is a small proportion of the general public that gets the idea of cryonics but thinks that current freezing methods won't allow for revival. Research to make cryopreservation better deals with this, so these people might support that research.
2. The majority of people have a "knee-jerk" reaction—they can be divided into several groups.
  - a. Those who think cryonics is creepy and unnatural.
  - b. Those who do not want to think about it—they say things like "none of my friends will

be there,” and other dystopic comments.

- c. People who think cryonics is science fiction, per se. They think that people are dead and that is that. It cannot happen—like perpetual motion.

Why would they think this? Because scientists that they respect and trust—often “TV scientists”—say that. Well, why do the “TV Scientists” say that? Because the TV Scientists know what they do not know and the TV Scientists look to the Society for Cryobiology “who are anti-cryonics.” The Society for Cryobiology has a vested interest in being “mainstream” to keep funding coming in.

It is a circle:



So, how should we respond?

To those who say, “it can’t work because these people are dead” and stop thinking about it: Tell them that the medical definition of death has changed over time as we learned more. It used to be when the heart stopped. Now it is generally brain death. And so the definition of death may change again. As with Schrodinger’s cat, we do not know if a person is dead.

To those who raise the “hamburger” argument [the damage caused by freezing is so severe that bringing someone back from cryopreservation is as likely as bringing hamburger back to life]: Cryopreservation of organs is a respectable area of research! It is only trying to freeze a brain that you get in trouble for! Indeed, the brain is different from other organs: it has constant electrical activity. When it freezes that

electrical activity stops...but it stops at 18°C and many people have been that cold for an hour and revived without ill effect! That does not prove that a cryopreserved brain does not have damage, but it does cast doubt that any damage that does occur will be too severe to fix.

To those who say, “if we wake people up they will be in the state that they were in when they died and will just die again soon. Aging isn’t a disease so we cannot fix that!”: Until recently anti-aging work was focused on slowing it down. Research done by Dr. de Grey and his organization indicates that repair of cellular damage will be easier than slowing down the aging process. So the question becomes: how near to death can one be and still be able to be helped? Initially, probably not so close since the process will first be very invasive – organ replacement, etc., which is strenuous on the body. Over time he thinks it likely that it will become less invasive so people could be closer to the brink and still get fixed.

### SUSPENDED ANIMATION INC.

*Catherine Baldwin, C.O.O.*

The next day (Oct. 26) Catherine Baldwin began the presentations at 10 AM. Suspended Animation (SA) offers standby and stabilization. 1/3 of CI members and all Alcor members in the US but outside of Arizona are contracted with SA.

“Mainstream” studies about cooling: The International Liaison Committee on Resuscitation (“ILCOR”) and the American Heart Association both came to the conclusion that if someone is cooled (hypothermia) shortly after a heart attack survival is improved and there is brain damage less often.

During heart surgery they do vascular cooling—cooling fluids are pumped through the blood vessels.

SA’s process achieves “deep rapid hypothermia.” For surgery and perfusion they regularly utilize four doctors from PDC Perfusion Resources and Perfusion.com. These groups have doctors on call to do perfusions at hospitals when staff surgeons are on vacation and for small hospitals which have no vascular surgeon on staff.

SA also provides premier home health care. This includes:

- Patient database assistance
- Hospice care
- Nursing care

SA has doctors on call 365 days per year, 24 hours per day in 14 states.

It has portable equipment and 2 fully equipped surgery vehicles (one in Florida and one in California).

- SA has facilities in Florida and in California.
- SA’s people are trained in its facility in Florida on the same type of equipment that they use every day.
- SA’s East Coast response team is headquartered in Florida.
- SA’s Research and Development center and Headquarters are in California.
- As is its West Coast response team.

What is SA working on?

For 15 years they have been working on portable liquid ventilation. They think that they are close to making it a practical reality. This is a method of rapid cooling that does not require surgery. It can be used at a hospice—or wherever the patient is—right after pronouncement of death. It needs a heartbeat/cardiopulmonary device. Cold perflurocarbon fluid is moved in and out of the lungs. Experimentation on a dog has brought cooling of up to 1½ degrees per minute which is much faster than other methods.

They are also working on technology for keeping tabs on patient health.

And they are developing a smaller, less heavy perfusion device (that can still withstand baggage handlers!). They are in the process of building a new machine which will reduce the current 75 lb. corded unit to a 10 lb battery operated unit that works for 5-10 hours. Life Extension Foundation (“LEF”) pays for all of this research. LEF also subsidizes the cost of patient care.

## CRYONICS RESEARCH

*Chana de Wolf, President of  
Advanced Neural Biosciences (“ANB”)*

At 11 AM Chana presented work being done by Aschwin de Wolf and herself. She began by discussing some problems that come post mortem in cryonics cases:

- Low blood flow to the brain
- Ischemia
- Transport delays
- Third parties hostile to cryonics

## ISCHEMIA

Problems are caused by greater than one hour of warm ischemia or a longer period of cold ischemia. Sometimes perfusion is not possible in those cases. We intuitively know that a straight freeze is better than nothing. But their experiments indicate that it may be better than we think it is.

Attempts to perfuse ischemic brains using higher pressures cause more edema, more ice formation and worse freezing. Longevity and the Cryonics Institute supported research on whether a delayed washout is worth doing at all after warm or cold ischemia. The longer the warm ischemia, the worse it gets. Over sixty minutes there is the same amount of ice formation with or without perfusion.

New things ANB is working on include whole brain cryobiology.

Under a grant from the Life Extension Foundation they are working to recover EEG (organized electrical activity) after cryopreservation. “That would shut up the critics!”

Also, their studies have shown that after one month of cold ischemia there is more structure than they expected.

## THE CRYONICS INSTITUTE AND THE IMMORTALIST SOCIETY

*Joe Kowalsky*

After lunch I was up to speak first about the Cryonics Institute and then the Immortalist Society.

Unfortunately, I tend to use a lot of energy when I speak and am pretty wiped out afterwards. So although we had several speakers after me, my notes are nearly non-existent. I will give a very brief comment

on each and invite these speakers to submit more complete articles to Long Life themselves, as I feel I’m not doing them justice.

## THE TIMESHIP PROJECT

*Steven Valentine*

Steven gave specifics of architecture, protection, etc. He included many slides and diagrams. The presentation was great, though I thought it was longer than it should have been as it cut into the time of the following presentation.

## VENTURISM SOCIETY

*Mark Plus*

Mark Plus, Secretary for the Society for Venturism and one of the conference coordinators, spoke about the Venturism charity programs and recipients. He discussed several people including Kim Suozzi, Bill O’Rights, and the current efforts for Aaron Winborn, who has ALS and is trying to raise funds for his suspension. He went into each of their personal experiences. He noted that Kim, especially, brought positive interest given her youth and her social media activities.

## ALCOR

*Max More, CEO*

Max More, PhD, Chief Executive Officer of Alcor today and tomorrow, including its procedures and ongoing research and improvements. I was very impressed by the efforts of Max and his Board of Directors in their ongoing work to improve cryonic suspensions as well their efforts to maintain and develop a strong financial position. One of my favorite lines from his talk was that Alcor does not (and that cryonicists in general should not) rely on “magic friends in the future” to fix our problems. But rather we must give the best possible cryopreservation so that damage is minimized or, eventually, non-existent. He went on to describe the methods that Alcor uses to do this.

(On a personal note, I really like all of the people that I met at the conference, and think that the friendly competition of CI and Alcor will make both organizations stronger. I also see many areas in which

we are effectively cooperating or could cooperate without taking away from the differences that make each of our organizations what they are. These include supporting the research of ANB and working on legislative issues should they arise (lobbying)).

## DAVID PIZER, PRESIDENT OF THE SOCIETY FOR VENTURISM

Pizer discussed how the Venturist “No Autopsy” card might prevent autopsies—and how to get one. He also discussed how the Venturists, and the Venturist back-up trust, might provide protection to people in suspension. I enjoyed his comment about cryonicists being strong willed people. He said with a laugh that “we join a cryonics organization then try to start our own!” This is a very powerful and positive point: we are determined and persistent.

## BRUCE COHEN, OF NUTRITION WORLD

Bruce wrapped things up, discussing new ways of doing cryopreservation and some old thoughts on being preserved, such as Ben Franklin’s comment about wanting to be preserved in Madeira wine.

## THAT’S A WRAP!

After dinner, at 8 PM, Don Laughlin took the stage to answer questions on all topics. Don is an interesting and down-to-earth man with practical experience in making things happen while not over-reaching.

Later that evening a group of us went to the Karaoke Bar in the hotel to celebrate what we all felt was a successful event. The following morning we had a group discussion with many good ideas presented. After closing, a bunch of us went to lunch together and the conversations continued informally. In my opinion, these informal meetings were as important as the presentations. The discussions were stimulating, and raised many ideas (and questions) that I hadn’t thought about before. Just getting to know these people—cryonicists from around the world—was enlightening and encouraging! ■



# LAUGHLIN VENTURIST CRYONICS CONVENTION

OCTOBER 25–27, 2013

## SOME RECOLLECTIONS BY MIKE PERRY, DIRECTOR, SOCIETY FOR VENTURISM

My thanks to Joe Kowalsky for his excellent summaries of the talks given at the Cryonics Convention. As Joe states, he missed some of the talks and was too “spent” for good note taking for some of the others, but overall he did a nice job I think. (I will say too that he was considerably more thorough in his note-taking most of the time than I was, in spite of any of his shortcomings.) So here I’m trying to fill in some gaps, rather than be comprehensive, and the summaries and/or impressions of the four talks I offer, all of which were on Oct. 25, will have to be brief due to space and other limitations. One thing about this event, due to the press of other requirements, and it being our first sortie of its type (using the Laughlin facilities) is that *the conference was not recorded!* (A lot had to be done to put this on, with not so many available to do it.) So actually I am hoping we can collect archival materials from the presenters (slide presentations would be most welcome) and possibly entice them to write up their presentations, as Joe has admirably done with his. Anyway, on to the summaries—start times based on the printed program are approximate.

### Cairn Idun’s talk (1:00 pm)

**Attitude Evolution.** Sometimes time is on our side. Today attitudes increasingly favor peaceful tolerance of differences. This is good for cryonics. People generally appear to agree that we do have the right to what they see as a strange practice, if that’s how we want to spend our efforts and money. There is more ground to be covered however. One area is in pre-mortem cryopreservations. We want to be cryopreserved, not just when nature decrees the shutdown of our bodies, but when we are in our right minds, something not at all guaranteed by the course we must go through as we age and gradually weaken in various ways. There is hope, however, that evolving attitudes will help us secure this right, which is related to assisted suicide that is gradually becoming more legalized.

### Mike Perry’s talk (2:00 pm)

**History of Venturism and Plans for Immortalist Hall of Fame and History.** The Society for Venturism started July 11, 1986 (then named the Church of Venturism, present name adopted in 1990). It is mainly the brainchild of David Pizer, who sought to incorporate a “spiritual” element into the cryonics movement, in a way that would not require belief in the supernatural. Three of the four incorporators were in the room when the talk was given (David Pizer, Trudy Pizer, Mike Perry). Over the years the Venturists have promoted the idea that cryonicists should form a harmonious, supportive community, and have accordingly directed efforts toward benefitting the cryonics movement at large and helping promote friendly contacts and productive exchanges among cryonicists. One project in recent years has been to do fundraising for needy cryonics cases. In keeping with our benevolent purpose we hope to establish a museum that will honor those who have made important contributions to cryonics and immortalism, and to chart the history of humankind’s attempt to overcome death through rational means.

### Ben Best’s talk (2:30 pm)

**Cryonics on Wikipedia.** Ben Best detailed the struggles to get cryonics and related enterprises duly recognized and reported on Wikipedia, the free Internet encyclopedia widely used as a quick source of information. It hasn’t always been easy. One recent struggle involved trying to have an article on Venturism, which was Ben’s brainchild as a director of the Society and given his background with Wikipedia. A lot of people favored it but not the prime movers of Wikipedia, and the article was removed. The Venturist organization received a lot of publicity from the Kim Suozzi case, where the young girl with terminal cancer was able to raise enough funds with Venturist help to pay for her cryopreservation at Alcor. No matter, we were said to be basically a movement not of “general” interest and not suitable for an article about ourselves. (But we will be back.)

### Special event (7:00 pm)

The audience was treated to a confidential stream of remarkably positive new research results showing major strides in advanced tissue cryopreservation, fracture avoidance, radically extended hypothermic storage, and emerging prospects for more effective opening of the blood-brain barrier, which may facilitate better brain cryopreservation in the future. These advances were on the level of either whole organs or whole organisms, involve extensive work from several people in multiple laboratories, and remain mostly undisclosed publicly anywhere else. We wish we could tell you more, but the condition of the presentation was that it be kept confidential, so this is one of those times when you had to be there to benefit from the information. We understand that all of this work will be published eventually, so stay tuned, good things are coming. ■



Options for Safe, Secure and Legal Asset Preservation for Post-Resuscitation Access

**The Fifth Annual Young Cryonicists Gathering**  
**Teens & Twenties 5 2014: Getting to Know You -**  
**You Getting to Know Each Other**

Fri-Sun; **April 4-6, '14** Deerfield Beach FL Host: Life Extension Foundation **SCHOLARSHIPS AVAILABLE**

\*\*\*\*\*

Greetings to *Young Cryonicists*,

You are receiving this invitation because you are among the future leaders in cryonics.

All attention will be focused on:

our getting to know you and  
you getting to know each other.

PLUS: an update on the latest emergency response technologies and revival strategies.

Who is Eligible?

Fully signed up young cryonicists from all cryonics organizations in their late teens through age thirty (17-30) as of April 10, 2014 - may apply to attend.

Younger Cryonicists With Parent(s)

Twelve through sixteen year olds may attend when accompanied by their parent(s) or guardian.

Parents/guardians of attendees aged 17-19 are also encouraged to accompany their child. All attending parents will be put in touch with each other should they choose to have their own "get together" during the "young cryonicists" gathering.

Program

Some individuals are social butterflies. This is not so for everyone. And we want everyone to meet everyone. Therefore, I have designed a diverse range of "getting to know you" activities. If you would enjoy participating in these various getting acquainted activities, then this is for you.

Enjoy this exciting & fulfilling weekend.

SCHOLARSHIPS:

Life Extension Foundation, through a generous education grant, is offering 40 scholarships that pay for **ALL** of the following:

- ◆ **U.S. airfare** to/from South Florida (or up to \$1000 for origin outside the U.S.)
- ◆ **Hotel** accommodations for Friday and Saturday nights
- ◆ **Meals** and beverages on Friday night, all day Saturday, and Sunday breakfast and lunch
- ◆ **Registration** fee - \$350 - also covered

Please go to this website for a full packet with all details and application forms:

<http://www.alcor.org/YC5.pdf>

Forever,

Cairn Erfreuliche Idun  
Founder/Director: T2

PS Come Early. Stay Late.

Some attendees to T2 enjoy spending extra time in Florida - especially since their flight is already paid for via their scholarship.

This is at their own expense for additional lodging and food.

I look forward to getting to know you.

# CRYONICS AT THE CRYONICS INSTITUTE

By Joe Kowalsky



Cryonics veteran Joe Kowalsky spoke at the Venturist Conference in Laughlin, NV on October 26. Joe is an active member in both CI and IS, including serving on the CI Board of Directors. The organizers of the Venturist Convention invited Joe to speak to their audience about two subjects he's intimately familiar with—The Cryonics Institute and The Immortalist Society.

Both talks were well-received by the audience, with many people commenting it was the best presentation at the conference. According to Joe, one attendee even made a point of texting himself a quote from the presentation in order to remember it!

*“My name is Joseph Kowalsky. I have been involved with the Cryonics Institute since 1981 and on the Board of Directors for about 20 years. I am not a scientist so I am not going to go into detail about the procedures which CI uses. Rather, I want to pass along some of what CI stands for and its general ethos. I am going to speak for only about 10 minutes because I know how long my attention span is! After that I would be happy to answer questions.”*

## THE CRYONICS INSTITUTE

The Cryonics Institute was founded in 1976 by Robert C.W. Ettinger “the father of Cryonics”—does anyone know what the CW stands for? [Chester Wilson—Mike Perry remembered.] Mr. Ettinger’s premise was that we are doing a public service as well as working on our own behalf. We want to be an “ambulance to the future” for as many people as we are able to. All of us now involved with the organization are volunteers with the exception of two paid employees and some contracted employees as needed. However, we have a large endowment—and no debt; we can add to our employment rolls on a moment’s notice if necessary. A small staff + our dedicated family of volunteers = low costs which we pass on to members.

**CI has never had a price increase.** It was \$28,000 in 1976 and it is \$28,000 today. This is important because it shows long term stability and allows for more people to be saved.

## HOW CAN WE DO THIS?

We have been able to do this since our costs have regularly declined, despite inflation, due in part to economies of scale. Additionally, many people substantially overfund beyond the standard \$28,000 which we charge for whole body cryopreservation.

## OUR GOAL

Our goal is to provide the best cryonics services, at the lowest prices responsibly possible, so as to open cryonics to the general public. Substantial overfunding and endowments by those who can afford it have allowed us to keep our prices low for those who cannot. As Rudi Hoffman discussed in his talk, he (and I, in my “day job” as a financial advisor) assist people to use life insurance to reduce those costs even further, when possible.

## ADDITIONAL MEMBER SERVICES

- Members can choose to use the excellent services of Suspended

Animation, Inc., with which we have an agreement. Their services and support staff were discussed earlier by Catherine Baldwin.

- Our members also have the option to plan other customized local methods of pre-suspension preparation with money they save by contracting with CI. Some have made arrangements with friends, family, volunteers, hospice, private nurses and morticians, among others. The Cryonics Institute will provide information and training materials on request. By contracting with CI our members have financial flexibility to customize, localize, and bring family along on this tremendous journey.
- We have a member who owns a house near CI and rents rooms to people who want to live near CI.

None of these additional services is overseen by CI—not Suspended Animation,



not private assistants, not morticians, and not the home near CI. CI is not responsible for their actions and members must do their own “due diligence.” But we do our best to work with members who want to use these or other services.

We hope that cryonics will one day be just another medical technique. In the nearer term we want people to understand its goals, recognize its potential, and see it as a serious attempt (by scientists and others) to help people, and not something grotesque or bizarre. Several other speakers have espoused the same goal, and made some really good suggestions for getting us to that point.

So how do we at CI work towards this goal? Here are a few examples:

- We provide only whole body cryopreservation.

The cost would not decrease dramatically for neuro-preservation and it would not provide a better suspension of the brain than what we do now. On the other hand freezing a head is just not viewed positively by the public. It is not that we disagree with the neuro option in principle but simply that it is hard enough trying to sell the idea of cryonics to the public without the unfortunate negative perception that head-only suspensions inevitably bring.

- We encourage tours of the facility. (These must be scheduled in advance.)
- We invite high school classes in regularly for a tour and “class” on cryonics. Most recently, we had a Catholic High School science class. (It is really important to present cryonics to high school and college students, who tend to be open-minded to new technologies and ideas.)
- Our annual meeting is open to the public. (And for the last three years we have had a marshmallow roast at my house after the meeting. [Rudi Hoffman, Mathew Deutsch and other marshmallow roast attendees cheered]).

- We regularly meet with the media from around the world. There have been articles and news stories about CI in the media of several European, Asian, North American, and South American countries, as well as in Australia, and CI has been featured in several documentary or other films.
- And, of course, we have an online presence.

### AMONG OTHER THINGS.

What do we say to these people, to the general public, to ourselves? One thing we do not say—nor do we believe—is that we are trying to raise the dead. Some 16 years ago CI and IS member John Besancon “died” in a shopping center parking lot. He was revived with a defibrillator and lived until just a few months ago. Had this happened to him even five years earlier the store would not have had a defibrillator and this story would likely have had a different ending. Although I said that he “died” in the parking lot, we know today that he was not really dead yet. Dan Davis and Dr. Grey did an excellent job discussing this point earlier.

Is anyone here a Monty Python fan? (quoting, in high and low pitched voices:) “I’m not dead yet!” “Yes he is!” “No I’m not!” “Well, he’s almost dead!” . . . [Laughs]

I like to tell the story of someone who dies of a heart attack in the 1800s. You are walking down the street in 1803 and a man drops to the sidewalk. A doctor is there and declares that the man had a heart attack and has died. You happen to have a defibrillator with you and run up screaming “I can save him! I can save him!” You proceed to shock the man, making his body jump. You start pounding on his chest. You squeeze his nose and breathe into his mouth... and you are arrested for desecrating the body. All they see is you kissing and pounding on a dead body. Today we know that he might not actually have been dead.

We say in honesty and humility that we are ignorant: we do not know when death occurs. The best we can do in some cases is to try to keep the person in stasis, to keep the body as it was when the heart stopped beating and the breathing stopped, so that

perhaps a doctor in the future may say, “Cancer? That’s not a big deal. We can fix that. This person was not really dead yet!”

### HOW IS CI ORGANIZED?

We have a diverse Board of Directors and a larger and more diverse Board of Advisors. We try to keep it that way as there are many different facets to running an effective organization. Our Board Members have differing interests and work in various fields including medical, sciences, the arts, writing, health, law, public relations and, like me, finance, among others.

Most of our Directors live in the United States. One lives in Australia and several people on our Board of Advisors live on other continents. In the past we have had several Board members from outside of the US. Since our membership now reaches 35 countries on 5 continents, we expect that that will continue.

### FOLLOWING ROBERT ETTINGER’S VISION

How many people here knew Robert Ettinger? [Several people raised their hands.] As those of you who raised your hands know, Robert Ettinger was a visionary; he was brilliant, kind, giving... and a curmudgeon. He was a pragmatist with no interest in, or patience for, glitz or glamour. He focused on what would work, to the best of our knowledge, least expensively and most simply. The simpler the mechanism, the less chance of mechanical breakdown.

The site itself is a nondescript warehouse building, modified to suit our needs. It is clean and well-kept.

We have often been referred to as the cheaper, family run, mom and pop type cryonics operation. We would have it no other way. We are proud to serve our members as such and do consider ourselves one big family.

As I said, Mr. Ettinger and CI always had—and the Cryonics Institute still has—sights set on what would work, to the best of our knowledge. This means a strong focus on research. For several years we had on staff Dr. Yuri Pichugin, one of the top cryobiological researchers of the former Soviet Union. He developed

the vitrification solution that is now in use at CI. More recently we have contracted with Aschwin and Chana de Wolf—who spoke earlier and who continue to move us forward on the research front.

## THE PROCESS ITSELF

Our methods are standardized, methodical, and practiced. Within the parameters of these rules, and because our people have trained and trained, they can still be flexible if the situation demands it.

Our President—Dennis Kowalski—(who refuses to spell his name with a “y” no matter how much I prod him!) is a paramedic. His work daily demands that he live in the world of what can be done most practically and efficiently to help patients. But it also demands regular assessment of how those processes can be improved. He emphasizes this ethic in his role as President.

Our website is cryonics.ORG—again, cryonics.org. And I have materials here on the table for anyone who would like some. Please also feel free to list your name and contact information on the sheet if you would like us to contact you.

The Cryonics Institute, its members, its president, Dennis Kowalski, its Board of Directors, and I want to thank the Venturists and all of you in attendance. In this regard, Dennis wrote the following eloquent words which I would like to read to you verbatim:

“We’d like to thank the Venturists for inviting us to this event and look forward to working together to unite cryonics under one common banner. The Venturists’ charitable efforts illustrate what is best about cryonicists. Our propensity to reach into our hearts and help one another in times of need and suffering makes me proud to be a part of this awesome endeavor. We also would like to show our support for Alcor and our other sister organizations, and all that they do to help push cryonics ahead into the future.”

[I paused here to look up and inject a comment of my own:] As in any family of strong willed individuals we have differences of opinion and sometimes heated competition. This keeps us on our

toes, and thinking, and benefits us all.

Dennis’s comments continue:]

“We all have a vested interest in seeing each other improve and prosper. As they say we are all in the same boat and we sink or swim together. Being the less expensive sister organization to several other cryonics companies places us in the unique position of backup organization to many people—or as some have called us “their reserve parachute.” We truly need one another and we are stronger when we learn and grow as a family. For this reason and others I thank the Venturists for bringing our organizations together as an even bigger family.”

I want to close by reiterating something I said before: We are ignorant. We do not know when someone is truly dead. When someone’s heart stops, when disease damages the body beyond what we can now repair, when illness overtakes our medical skills and a person lies silently on the bed the person may be screaming to us in silence “I’m not dead yet!” It is up to us to hear him.

Catherine Baldwin said that sometimes religious people—family members, people in position of authority, etc.—tell her that what we do goes against God’s will and try to stop her. I think—and now I speak for myself only—I think that it is an affront to God to pronounce and declare that without question a person has died. We have seen too much in the past 40 years of organ transplants, heart bypass surgery and defibrillators to have the hubris to say that!

And so we do what we can. We are ignorant but we are also smart, curious, and resourceful. (Atheists can stop listening here!) If there is a God or Creator that made us in its image, I think that Creator would be—to anthropomorphize—its equivalent of proud that we use the gifts that we were given, to save lives, to make the world a better place, and to try to improve the human condition.

And now, please bombard me with questions!

## PART II – THE IMMORTALIST SOCIETY

The Immortalist Society is a volunteer-run, 501c3 non-profit charitable organization.

It was formed as the Cryonics Society of Michigan by the same people who started the Cryonics Institute, i.e. Robert Ettinger and others. Many of us old-timers (I love to think of myself as an “old timer”. I remember when I was the youngest one at the meetings!)—many of us old timers are members of both organizations. But its mandate is different. It has a separate Board of Directors and different goals. And over the past 40 years it has developed into the totally separate organization that it was intended to be. The Immortalist Society’s charter is for education and research. It is a non-sectarian cryonics organization. It has no agenda of its own other than research and education that is helpful to cryonics.

## THE OFFICERS

IS elects its officers annually. York Porter has been the friendly face of IS for several years as its President. John Bull is Vice President. (In addition, John almost single-handedly put out *Long Life* magazine for years.) R.A. Brown is Secretary and has taken meticulous notes for twenty years or more; and Richard Medalie is Treasurer since the death and cryopreservation of long-time Treasurer John Besancon. These fine people volunteer hours and hours of time—most have been at this for many years. They work quietly with few accolades, on things from which we all benefit. I encourage you to get to know York and the rest of the IS Board members.

## SOME SPECIFICS

So what are the things that the Immortalist Society does (through these capable officers and other volunteers)?

## EDUCATION

Its magazine, *Long Life*, on which I do some volunteer work, covers stories from every cryonics and cryonics related source that we can find. We have had articles about many people in this room and about virtually all of the presenters. We welcome submissions from anyone. York Porter, the President of IS, who does the majority of the work putting together the magazine, with graphic designer Doug Golner, would be extremely grateful for anything you wish to submit. I intend to write a short

piece about this conference but if anyone else wants to write about it that would be terrific!!!

## RESEARCH

IS gives grants to the extent that its funding allows. It accepts applications from any person or organization that is doing research on things cryonics or cryonics related. Donations to IS are tax deductible. We are very proud that IS was able to “jump start” the initial work of conference presenters, researchers Chana and Aschwin de Wolf, whose work then and since could benefit us all. We expect to be working with them again in the near future, perhaps before the year is out.

Most recently IS has initiated the Organ Cryopreservation Prize. Thanks to the several people here whose advice was so helpful to us in getting this started. The prize is still in its early stages but is expected to begin at \$50,000. It will be awarded to the first person or group to successfully freeze and restore to full function one of several mammalian organs. Details are on the Immortalist Society’s website: [ImmortalistSociety.Org](http://ImmortalistSociety.Org) and also at [Cryoprize.Info](http://Cryoprize.Info).

I recently had the pleasure to have a 30 minute private meeting with Leonard Nimoy—I made a donation to a charity of his and he made a donation to mine—the Organ Cryopreservation Prize. More importantly, he said that we could tell people that he had donated. To my knowledge, this is the first time that a celebrity of his stature agreed to have his name associated with something even tangentially related to cryonics!

I told him that he could use my name for his charity . . . but he did not seem quite as interested.

A common concern is that the prize may be too small to make a difference. But the goal here is not just research gains but also education and an effort to affect the zeitgeist of our world as Dan Davis and Dr. de Grey discussed yesterday. People have come to accept that sperm, ova and even embryos can be frozen. There is nearly unanimous acceptance of organ transplantation. In my discussions prior to starting work on the Cryoprize project I spoke with a large

array of people from different walks of life about organ transplants and without exception, everyone I spoke with was enthusiastic about that, but also knew someone or knew of someone that had difficulty getting a transplant. The concern about the time factor—organs do not last long once out of the body—was a recurring theme. When I then mentioned the idea of freezing an organ to make transplants safer, less costly, more available—I again received an enthusiastically positive response.

The goal with the Cryoprize was to seize upon something that could help people but also which, one, people will accept, and which, two, is just a step away from cryonics. Just as the freezing of embryos gives people a stepping stone to consider the freezing of organs, if people accept freezing of organs, they will, I think, be more inclined to give cryonics a second look. Over time. To paraphrase a favorite movie of mine, baby steps can work wonders; great and thoughtful arguments and reasoning can cause walls to come up.

## CLOSING REMARKS

I should close with a reminder that:

- The Immortalist Society is a 501c3 charitable organization
- run entirely by volunteers
- to promote education and research in cryonics and cryonics-related matters.

It welcomes:

- your membership,
- written submissions for *Long Life* magazine,
- volunteer assistance,
- suggestions,
- and your donations which you can specify to go to education, to research, or to the Cryoprize.

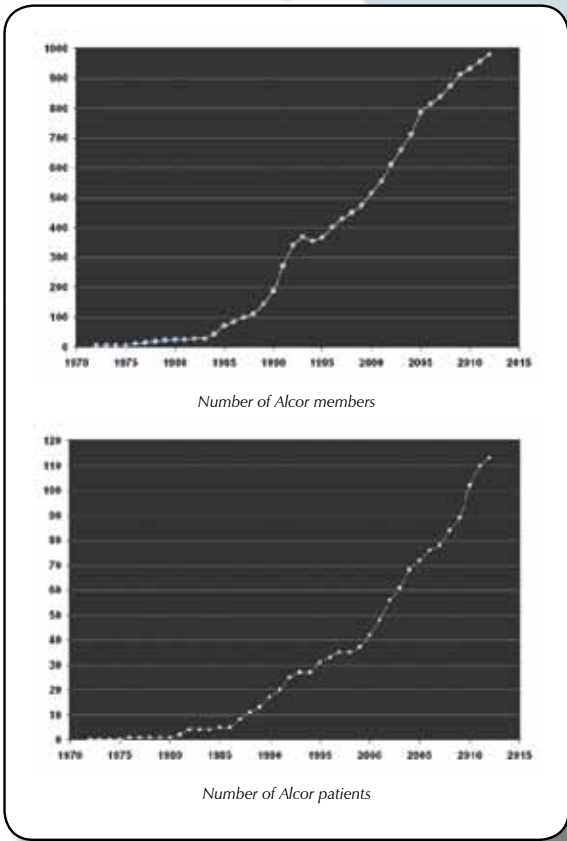
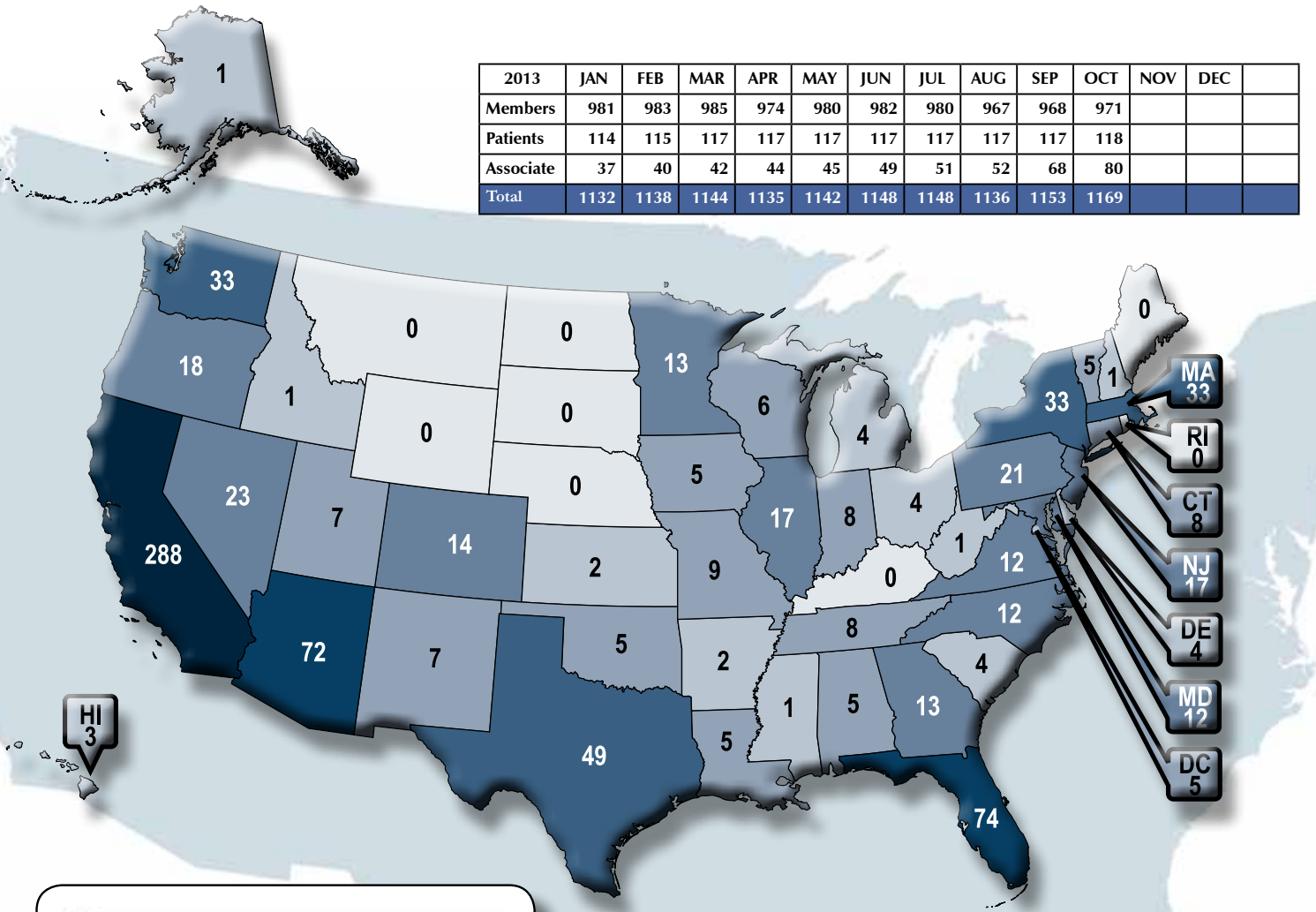
The website is [WWW.ImmortalistSociety.Org](http://WWW.ImmortalistSociety.Org). Information on the CryoPrize is at [www.Cryoprize.Info](http://www.Cryoprize.Info) and on Facebook. And I have information on our table at the back of the room by the window overlooking the river.

And now, are there questions? ■



# Membership Statistics

2013	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Members	981	983	985	974	980	982	980	967	968	971			
Patients	114	115	117	117	117	117	117	117	117	118			
Associate	37	40	42	44	45	49	51	52	68	80			
<b>Total</b>	<b>1132</b>	<b>1138</b>	<b>1144</b>	<b>1135</b>	<b>1142</b>	<b>1148</b>	<b>1148</b>	<b>1136</b>	<b>1153</b>	<b>1169</b>			



- 0 Members
- 1-4 Members
- 5-9 Members
- 10-24 Members
- 25-49 Members
- 50-74 Members
- 75+ Members

### International

Country	Members	Patients
Aruba	1	0
Australia	13	3
Canada	40	2
Denmark	1	0
Germany	4	0
Israel	1	1
Italy	2	0
Japan	1	0
Lebanon	1	0
Mexico	4	0
Monaco	2	0
Netherlands	2	0
New Zealand	2	0
Norway	1	0
Portugal	4	0
Spain	2	1
Thailand	3	0
United Arab Emirates	1	0
United Kingdom	21	2
<b>TOTAL</b>	<b>106</b>	<b>9</b>

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# VASCULAR BENEFITS OF A Mediterranean Diet

## VALIDATED IN HUGE NEW STUDY

A large, rigorous study published in the *New England Journal of Medicine* confirmed the health benefits of those who switch to a **Mediterranean diet** rich in **omega-3 fish oil** as well as protective nutrients called polyphenols found in **olive oil**, fruits, vegetables, nuts like walnuts, and wine.<sup>1</sup> The study ended early because the benefits were so overwhelming, with startling benefits for vascular health, that it was considered unethical to continue to deprive the control group.<sup>1</sup>

In addition to the health-promoting benefits of vegetables and fruits with their abundance of polyphenol nutrients, the Mediterranean Diet group took at least **4 tablespoons** of polyphenol-rich extra-virgin **olive oil** a day.<sup>1</sup>

### LIFE EXTENSION® MEMBERS LONG AGO BENEFITED

Starting in **2005**, Life Extension members began taking a supplement (**Super Omega-3**) that provided potent concentrations of **fish oil** and **olive polyphenols** like hydroxytyrosol and oleuropein. This supplement also provided standardized **sesame lignans** to support the beneficial effect of omega-3 fatty acids in the body.<sup>2</sup>

Olive oil contains polyphenol nutrients that have demonstrated wide-ranging health benefits.<sup>3,5</sup> The recommended twice daily dose of **Super Omega-3** supplies a similar polyphenol content to that found in **4 to 6 tablespoons of olive oil**.

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**CAUTION:** If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

Supportive but not conclusive evidence shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. IFOS™ certification mark is a registered trademark of Nutrasource Diagnostics, Inc. These products have been tested to the quality and purity standards of the IFOS™ program conducted at Nutrasource Diagnostics, Inc.

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A bottle containing 120 softgels of **Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract** retails for \$32. If a member buys four bottles, the price is reduced to **\$21** per bottle. If **10 bottles** are purchased, the cost is **\$18.68** per bottle. (Item #01482)

The daily dose (four regular size softgels) of Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract provides:

EPA (eicosapentaenoic acid)	1,400 mg
DHA (docosahexaenoic acid)	1,000 mg
Olive Fruit Extract (std. to 6.5% polyphenols (39 mg), 1.73% hydroxytyrosol/tyrosol (10.4 mg), 0.5% verbascoside/oleuropein (3 mg))	600 mg
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*Starting with this issue, Resuscitation Update will replace Tech News. Whereas Tech News provided the reader with a compilation of news items with some kind of relevance to cryonics and life extension, Resuscitation Update will more narrowly focus on emerging technologies and research that will permit the successful resuscitation of cryonics patients. A permanent feature of Resuscitation Update will be an overview of core papers and studies explicitly aimed at cell repair and rejuvenation biotechnologies.*

## What Do Memories Look Like?

Oscar Wilde called memory “the diary that we all carry about with us.” Now a team of scientists has developed a way to see where and how that diary is written. Led by Don Arnold and Richard Roberts of USC, the team engineered microscopic probes that light up synapses in a living neuron in real time by attaching fluorescent markers onto synaptic proteins—all without affecting the neuron’s ability to function. The fluorescent markers allow scientists to see live excitatory and inhibitory synapses for the first time and, importantly, how they change as new memories are formed. The synapses appear as bright spots along dendrites (the branches of a neuron that transmit electrochemical signals). As the brain processes new information, those bright spots change, visually indicating how synaptic structures in the brain have been altered by the new data. “When you make a memory or learn something, there’s a physical change in the brain. It turns out that the thing that gets changed is the distribution of synaptic connections,” said Arnold who is an associate professor of molecular and computational biology.

Robert Perkins / USC News  
19 Jun. 2013

[http://news.usc.edu/#!/article/52496/  
what-do-memories-look-like/](http://news.usc.edu/#!/article/52496/what-do-memories-look-like/)

## Scientists Map a Brain Down to Its Cells

An international team of scientists report they’ve assembled the first three-dimensional model of the human brain that maps its anatomy on a cellular level. Previously, doctors had been able to

locate areas in the brain using imaging technologies such as MRI and CT scans. But the new model, called BigBrain, will allow researchers to peer at the organ’s structures in much greater detail, producing images that are about 50 times more finely grained than the resolution of the best available MRI brain atlases. The research is published in the June 21 issue of the journal *Science*. “Reference brains have become an important tool for neuroscience, and especially for human brain research,” *Science* senior editor Dr. Peter Stern said during a Wednesday news conference on BigBrain. “For a better understanding of the structural organization of something as complex as the human central nervous system, we really need a much, much closer look.” To make the model, the scientists carefully sliced a human brain that had been dipped in wax. Each slice was about 20 micrometers thick.

MedlinePlus  
20 Jun. 2013

[http://www.nlm.nih.gov/medlineplus/  
news/fullstory\\_138011.html](http://www.nlm.nih.gov/medlineplus/news/fullstory_138011.html)

## Unique Epigenomic Code Identified During Human Brain Development

Changes in the epigenome, including chemical modifications of DNA, can act as an extra layer of information in the genome, and are thought to play a role in learning and memory, as well as in age-related cognitive decline. The results of a new study by scientists at the Salk Institute for Biological Studies show that the landscape of DNA methylation, a particular type of epigenomic modification, is highly dynamic in brain cells during the

transition from birth to adulthood, helping to understand how information in the genomes of cells in the brain is controlled from fetal development to adulthood. The brain is much more complex than all other organs in the body and this discovery opens the door to a deeper understanding of how the intricate patterns of connectivity in the brain are formed. “These results extend our knowledge of the unique role of DNA methylation in brain development and function,” says senior author Joseph R. Ecker. “They offer a new framework for testing the role of the epigenome in healthy function and in pathological disruptions of neural circuits.”

Salk Institute  
4 Jul. 2013

[http://www.salk.edu/news/pressrelease\\_  
details.php?press\\_id=625](http://www.salk.edu/news/pressrelease_details.php?press_id=625)

## A Manufacturing Tool Builds 3-D Heart Tissue

By adapting a programmable device used to manufacture integrated circuits, researchers have devised a semi-automated process to build polymer scaffolds for guiding the development of three-dimensional heart tissue. The method, which entails layer-by-layer fabrication, will enable more precise investigation of the three-dimensional cues that drive cells to organize and form tissue—and could serve as a platform for the development of implantable organ tissue. Tissue engineers can already make three-dimensional constructs of relatively simple tissues. But highly ordered cellular architectures essential to the function of complicated organs like the heart are much harder to replicate. Tissue is grown in the lab by “seeding” scaffolds—usually

composed of a porous elastic or gelatinous material—with cells meant to develop into specific tissues. Cardiac tissue’s function stems from its “multiscale architecture,” in which individual cells align to form multicellular fibers, which in turn form sheets of tissue, says Martin Kolewe of MIT’s Institute of Medical Engineering and Science.

Mike Orcutt / MIT Technology Review  
15 Jul. 2013  
<http://www.technologyreview.com/news/516861/a-manufacturing-tool-builds-3-d-heart-tissue/>

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## Embryonic Stem Cells Could Help Restore Sight to Blind

Scientists have shown that light-sensitive retinal cells, grown in the lab from stem cells, can successfully integrate into the eye when implanted into blind mice. The technique opens up the possibility that a similar treatment could help people who have become blind through damage to their retinas to regain some of their sight. Loss of light-sensitive nerve cells, known as photoreceptors, is a major cause of blindness in conditions such as age-related macular degeneration, retinitis pigmentosa and diabetes-related blindness. Robin Ali at University College London’s Institute of Ophthalmology and Moorfields Eye Hospital has previously shown that transplanting immature rod cells from the retinas of very young mice can restore vision in blind adult mice. It was a neat proof of concept, but the technique as it stood would be impractical as a way to treat people. His latest work got around the problems of sourcing donor photoreceptor cells by growing and differentiating them from embryonic stem cells in a culture dish, rather than taking the cells from young mice.

The Guardian  
20 Jul. 2013  
<http://www.guardian.co.uk/science/2013/jul/21/embryonic-stem-cells-sight-blind-retinas>

## Inducing Pluripotency Every Time

In 2007, Japanese scientist Shinya Yamanaka reprogrammed adult skin cells into a stem-like state using a quartet of genes. These induced pluripotent stem cells (iPSCs) earned Yamanaka a Nobel Prize in 2012, kicked off a flood of research, and promised a way of growing bespoke tissues. But reprogramming techniques are still notoriously inefficient. At best, they can convert around 10 percent of adult cells into iPSCs; often, they only manage around 0.1 percent. Worse still, the process seemed random, and it was impossible to predict which cells would be successfully reprogrammed. This roadblock may be a thing of the past. Jacob Hanna at Israel’s Weizmann Institute of Science has found a straightforward way of producing iPSCs with almost 100 percent efficiency. Hanna’s team simply disabled a single gene, Mbd3, which seems to repress pluripotency. “I never believed we’d get to 100 percent,” said Hanna. “This shows that the process of reprogramming need not be random and inefficient. You can really control the cells much better than we thought.”

Ed Yong / *The Scientist*  
18 Sep. 2013  
<http://www.the-scientist.com/?articles.view/articleNo/37492/title/Inducing-Pluripotency-Every-Time/>

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## Google vs. Death

Google is preparing an especially uncertain and distant shot. It is planning to launch Calico, a new company that will focus on health and aging in particular. “In some industries,” says CEO Larry Page, who spoke exclusively with TIME about the new venture, “it takes 10 or 20 years to go from an idea to something being real. Health care is certainly one of those areas. We should shoot for the things that are really, really important, so 10 or 20 years from now we have those things done.” The unavoidable question this raises is why a company built on finding information and serving ads next to it is spending untold amounts on a project that flies in the face of the basic fact of the human condition, the existential certainty of aging and death? To which the

unavoidable answer is another question: Who the hell else is going to do it?

Harry McCracken; Lev Grossman /  
*TIME Magazine*  
30 Sep. 2013  
<http://content.time.com/time/magazine/article/0,9171,2152422,00.html>

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## Human Stem Cells Converted to Functional Lung Cells

For the first time, scientists have succeeded in transforming human stem cells into functional lung and airway cells. The advance, reported by Columbia University Medical Center (CUMC) researchers, has significant potential for modeling lung disease, screening drugs, studying human lung development, and, ultimately, generating lung tissue for transplantation. The study was published Dec. 1 in the journal *Nature Biotechnology*. “Researchers have had relative success in turning human stem cells into heart cells, pancreatic beta cells, intestinal cells, liver cells, and nerve cells, raising all sorts of possibilities for regenerative medicine,” said study leader Hans-Willem Snoeck, MD, PhD. “Now, we are finally able to make lung and airway cells. This is important because lung transplants have a particularly poor prognosis. Although any clinical application is still many years away, we can begin thinking about making autologous lung transplants—that is, transplants that use a patient’s own skin cells to generate functional lung tissue.”

Columbia University Medical Center  
Newsroom  
1 Dec. 2013  
<http://newsroom.cumc.columbia.edu/blog/2013/12/01/human-stem-cells-converted-functional-lung-cells/>

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## Eye Cells “Printed” Leading to Hopes of Future Blindness Cure

A major step towards curing blindness was taken as Cambridge University scientists succeeded in “printing” eye cells for the very first time. Using an inkjet printer, scientists at Cambridge’s John van Geest

Centre for Brain Repair successfully printed the adult eye cells which could potentially be used as new tissue implants. It is hoped that this may pave way for the production of artificial tissue grafts made from a number of cells in the retina which could cure some types of blindness. Scientists had previously printed embryonic stem cells and other immature cells, but had thought adult cells might be too fragile to print. Now, the printed cells from the optic nerves of rats not only survived, but also retained the ability to grow and develop. Professor Keith Martin, study co-author, said: "The retina is an exquisitely organized structure where the precise arrangement of cells in relation to one another is critical for effective visual function. "Our study has shown, for the first time, that cells derived from the mature central nervous system, the eye, can be printed using a piezoelectric inkjet printer."

Eleanor Dickinson / King's College  
18 Dec. 2013

<http://www.cambridge-news.co.uk/News/Cambridge-scientists-print-eye-cells-leading-to-hopes-of-future-blindness-cure-20131224060055.htm>

## 'Neural Dust' Brain Implants Could Revolutionize Brain-Machine Interfaces and Allow Large-Scale Data Recording

In a potential neuroscience breakthrough, University of California Berkeley scientists (Dongjin Seo et al.) have proposed a system that allows for thousands of ultra-tiny "neural dust" chips to be inserted into the brain to monitor neural signals at high resolution and communicate data highly efficiently via ultrasound. The neural dust design promises to overcome a serious limitation of current invasive brain-machine interfaces (BMI): the lack of an implantable neural interface system that remains viable for a lifetime. Current BMI systems are also limited to several hundred implantable recording sites, they generate tissue responses around the implanted electrodes that degrade recording performance over time, and are limited to months to a few years. Neural dust could also provide the large-scale recording of neurons required for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative, the scientists suggest.

Kurzweil AI  
17 Jul. 2013

<http://www.kurzweilai.net/neural-dust-brain-implants-could-revolutionize-brain-machine-interfaces-and-large-scale-data-recording>

## A Roadmap to Resuscitation

Successful rejuvenation of cryonics patients will require three distinct technologies: (1) A cure for the disease that put the patient in a critical condition prior to cryopreservation (2) biological or mechanical cell repair technologies that can reverse any injury associated with the cryopreservation process and long-term care at low temperatures (3) rejuvenation biotechnologies that restore the patient to good health prior to resuscitation.

The following list is a list of landmark papers and books that reflect ongoing progress towards the resuscitation of cryonics patients:

Michael G. Darwin, "**The Anabolocyte: A Biological Approach to Repairing Cryoinjury**," *Life Extension Magazine* (July-August 1977):80-83. Reprinted in *Cryonics Magazine*, 2008, Issue 4.

**A 'Realistic' Scenario for Nanotechnological Repair of the Frozen Human Brain**," in Brian Wowk, Michael Darwin, eds., *Cryonics: Reaching for Tomorrow*, Alcor Life Extension Foundation, 1991.

Ralph C. Merkle, "**The Molecular Repair of the Brain**," *Cryonics* 15(January 1994):16-31 (Part I) & *Cryonics* 15(April 1994):20-32 (Part II).

Ralph C. Merkle, "**Cryonics, Cryptography, and Maximum Likelihood Estimation**," First Extropy Institute Conference, Sunnyvale CA, 1994.

Aubrey de Grey & Michael Rae, "**Ending Aging: The Rejuvenation Breakthroughs That Could Reverse Human Aging in Our Lifetime**." St. Martin's Press, 2007

Robert A. Freitas Jr., "**Comprehensive Nanorobotic Control of Human Morbidity and Aging**," in Gregory M. Fahy, Michael D. West, L. Stephen Coles, and Steven B. Harris, eds, *The Future of Aging: Pathways to Human Life Extension*, Springer, New York, 2010, pp. 685-805.

Chana de Wolf, "**Reconstructive Connectomics**," *Cryonics Magazine*, July 2013.



# MEETINGS

## ABOUT THE ALCOR FOUNDATION

The Alcor Life Extension Foundation is a nonprofit tax-exempt scientific and educational organization dedicated to advancing the science of cryopreservation and promoting cryonics as a rational option. Being an Alcor member means knowing that—should the worst happen—Alcor's Emergency Response Team is ready to respond for you, 24 hours a day, 365 days a year.

Alcor's Emergency Response capability includes specially trained technicians and customized equipment in Arizona, northern California, southern California, and south Florida, as well as many additional certified technicians on-call around the United States. Alcor's Arizona facility includes a full-time staff, and the Patient Care Bay is personally monitored 24 hours a day.

## ARIZONA

### FLAGSTAFF:

Arizona without the inferno. Cryonics group in beautiful, high-altitude Flagstaff. Two-hour drive to Alcor. Contact [eric@flagstaffcryo.com](mailto:eric@flagstaffcryo.com) for more information.

### SCOTTSDALE:

This group meets the third Friday of each month and gatherings are hosted at a home near Alcor. To RSVP, visit <http://cryonics.meetup.com/45/>.

### AT ALCOR:

Alcor Board of Directors Meetings and Facility Tours—Alcor business meetings are generally held on the first Saturday of every month starting at 11:00 AM MST. Guests are welcome to attend the fully-public board meetings on odd-numbered months. Facility tours are held every Tuesday and Friday at 2:00 PM. For more information or to schedule a tour, call Marji Klima at (877) 462-5267 x101 or email [marji@alcor.org](mailto:marji@alcor.org).

## CALIFORNIA

### LOS ANGELES:

Alcor Southern California Meetings—For information, call Peter Voss at (310) 822-4533 or e-mail him at [peter@optimal.org](mailto:peter@optimal.org). Although monthly meetings are not held regularly, you can meet Los Angeles Alcor members by contacting Peter.

### SAN FRANCISCO BAY:

Alcor Northern California Meetings are held quarterly in January, April, July, and

October. A CryoFeast is held once a year. For information on Northern California meetings, call Mark Galeck at (408) 245-4928 or email [Mark\\_galeck@pacbell.net](mailto:Mark_galeck@pacbell.net).

## FLORIDA

Central Florida Life Extension group meets once a month in the Tampa Bay area (Tampa and St. Petersburg) for discussion and socializing. The group has been active since 2007. Email [arcturus12453@yahoo.com](mailto:arcturus12453@yahoo.com) for more information.

## NEW ENGLAND

### CAMBRIDGE:

The New England regional group strives to meet monthly in Cambridge, MA—for information or to be added to the Alcor NE mailing list, please contact Bret Kulakovich at 617-824-8982, [alcor@bonfireproductions.com](mailto:alcor@bonfireproductions.com), or on FACEBOOK via the Cryonics Special Interest Group.

## PACIFIC NORTHWEST

A Yahoo mailing list is also maintained for cryonicists in the Pacific Northwest at <http://tech.groups.yahoo.com/group/CryonicsNW/>.

### BRITISH COLUMBIA (CANADA):

The contact person for meetings in the Vancouver area is Keegan Macintosh: [keegan.macintosh@me.com](mailto:keegan.macintosh@me.com).

## OREGON:

The contact person for meetings in the Portland area is Aschwin de Wolf: [aschwin@alcor.org](mailto:aschwin@alcor.org)

See also: <https://www.facebook.com/portland.life.extension>

## ALCOR PORTUGAL

Alcor Portugal is working to have good stabilization and transport capabilities. The group meets every Saturday for two hours. For information about meetings, contact Nuno Martins at [n-martins@n-martins.com](mailto:n-martins@n-martins.com). The Alcor Portugal website is: [www.alcorportugal.com](http://www.alcorportugal.com).

## TEXAS

### DALLAS:

North Texas Cryonauts, please sign up for our announcements list for meetings (<http://groups.yahoo.com/group/cryonauts-announce>) or contact David Wallace Croft at (214) 636-3790 for details of upcoming meetings.

### AUSTIN/CENTRAL TEXAS:

We meet at least quarterly for training, transport kit updates, and discussion. For information: Steve Jackson, 512-447-7866, [sj@sjgames.com](mailto:sj@sjgames.com).

## UNITED KINGDOM

There is an Alcor chapter in England. For information about meetings, contact Alan Sinclair at [cryoservices@yahoo.co.uk](mailto:cryoservices@yahoo.co.uk). See the web site at [www.alcor-uk.org](http://www.alcor-uk.org).

**If you are interested in hosting regular meetings in your area, contact Alcor at 877-462-5267, ext. 113. Meetings are a great way to learn about cryonics, meet others with similar interests, and introduce your friends and family to Alcor members!**

# WHAT IS CRYONICS?

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Cryonics is an attempt to preserve and protect human life, not reverse death. It is the practice of using extreme cold to attempt to preserve the life of a person who can no longer be supported by today's medicine. Will future medicine, including mature nanotechnology, have the ability to heal at the cellular and molecular levels? Can cryonics successfully carry the cryopreserved person forward through time, for however many decades or centuries might be necessary, until the cryopreservation process can be reversed and the person restored to full health? While cryonics may sound like science fiction, there is a basis for it in real science. The complete scientific story of cryonics is seldom told in media reports, leaving cryonics widely misunderstood. We invite you to reach your own conclusions.

## HOW DO I FIND OUT MORE?

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The Alcor Life Extension Foundation is the world leader in cryonics research and technology. Alcor is a non-profit organization located in Scottsdale, Arizona, founded in 1972. Our website is one of the best sources of detailed introductory information about Alcor and cryopreservation ([www.alcor.org](http://www.alcor.org)). We also invite you to request our FREE information package on the "Free Information" section of our website. It includes:

- A fully illustrated color brochure
- A sample of our magazine
- An application for membership and brochure explaining how to join
- And more!

**Your free package should arrive in 1-2 weeks.** (The complete package will be sent free in the U.S., Canada, and the United Kingdom.)

## HOW DO I ENROLL?

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Signing up for a cryopreservation is easy!

**Step 1:** Fill out an application and submit it with your \$90 application fee.

**Step 2:** You will then be sent a set of contracts to review and sign.

**Step 3:** Fund your cryopreservation. While most people use life insurance to fund their cryopreservation, other forms of prepayment are also accepted. Alcor's Membership Coordinator can provide you with a list of insurance agents familiar with satisfying Alcor's current funding requirements.

**Finally:** After enrolling, you will wear emergency alert tags or carry a special card in your wallet. This is your confirmation that Alcor will respond immediately to an emergency call on your behalf.

Not ready to make full arrangements for cryopreservation? Then **become an Associate Member** for \$10/month (or \$30/quarter or \$120 annually). Associate Members will receive:

- *Cryonics* magazine by mail
- Discounts on Alcor conferences
- Access to post in the Alcor Member Forums
- A dollar-for-dollar credit toward full membership sign-up fees for any dues paid for Associate Membership

To become an Associate Member send a check or money order (\$10/month or \$30/quarter or \$120 annually) to Alcor Life Extension Foundation, 7895 E. Acoma Dr., Suite 110, Scottsdale, Arizona 85260, or call Marji Klima at (480) 905-1906 ext. 101 with your credit card information. You can also pay using PayPal (and get the Declaration of Intent to Be Cryopreserved) here: <http://www.alcor.org/BecomeMember/associate.html>



**Call toll-free TODAY to start your application:**

**877-462-5267 ext. 132 • [info@alcor.org](mailto:info@alcor.org) • [www.alcor.org](http://www.alcor.org)**



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- Access to a toll-free phone line to speak with **knowledgeable health advisors**, including naturopathic doctors, nutritionists, and a cancer expert, about your individual health concerns. You can also receive help in developing your own personal life extension program.
- **Discounts on prescription drugs, blood tests, and pharmaceutical quality supplements** that will greatly exceed your membership dues. You'll receive a directory listing

the latest vitamins and supplements, backed by scientific research and available through a unique buyers club.

### FREE BONUS!

- ***Disease Prevention and Treatment* book** (\$49.95 cover price)...this hardbound fourth edition provides novel information on complementary therapies for 133 diseases and illnesses—from Alzheimer's disease to cancer, from arthritis to heart disease—that is based on thousands of scientific studies.

Life Extension Foundation funds advanced vitrification and gene-chip research. Your \$75 membership fee helps support scientific projects that could literally save your life.

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