

CRYONICS

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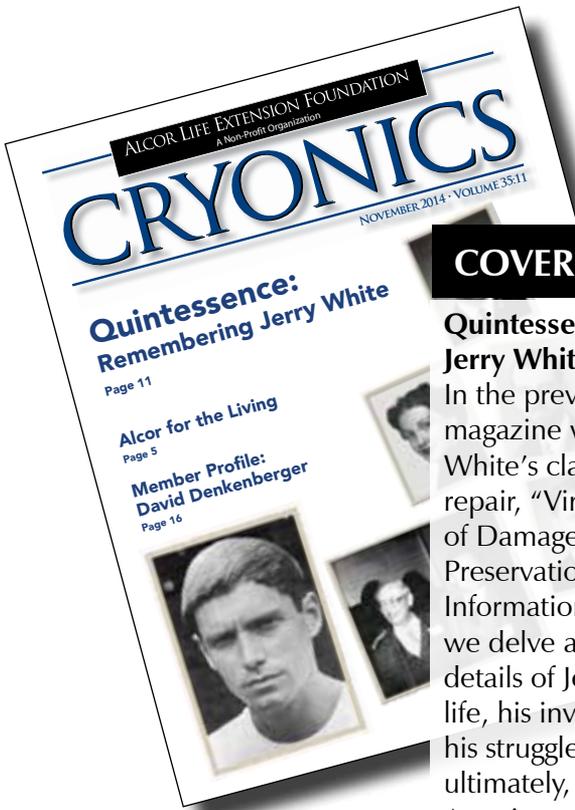
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CRYONICS



COVER STORY: PAGE 11

Quintessence: Remembering Jerry White

In the previous issue of Cryonics magazine we published Jerry White's classic paper on cell repair, "Viral-Induced Repair of Damaged Neurons with Preservation of Long-Term Information Content." In this issue we delve a little further into the details of Jerry White's productive life, his involvement in cryonics, his struggles with disease, and ultimately, his cryopreservation by American Cryonics Society.

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Mike Perry surveys the news and research to report on new developments that bring us closer to the resuscitation of cryonics patients.

5 QUOD INCEPIMUS CONFICIEMUS

Alcor for the Living

The fundamental reason why people make arrangements with Alcor is to be cryopreserved. But what can Alcor offer its members while they are still "alive?" Can Alcor do a better job of involving and retaining its members when it offers them unique and desirable benefits and opportunities as part of their membership?

16 Member Profile: David Denkenberger

As cryonicists, we want to feel secure in the knowledge that there will be a tomorrow. Dr. David Denkenberger, Alcor member since 2009, spends his days assessing global catastrophic risk and prioritizing interventions. Learn more about him and his drive to stay alive in this issue's member profile.

CRYONICS

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2014 Annual Giving Program

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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We encourage every member to donate. Even if you can only afford \$5 right now, you will make a significant contribution to Alcor's future.

Donations may be made via the Donations button on the Alcor website or by contacting Alcor's Finance Director, Bonnie Magee, at bonnie@alcor.org. Your donation may be made as a lump sum or divided into easy monthly payments. ■

The James Bedford Society



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 or call 480-905-1906 x114 to discuss your gift. ■



QUOD INCEPIMUS CONFICIEMUS



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



ALCOR FOR THE LIVING By Aschwin de Wolf

At the recent annual Annual Strategic Meeting a number of rather encouraging motions were passed that will lower the cost of cryonics for many members. Membership dues are reduced by 10%, one uniform (lower) additional fee for overseas cases was established, and members now have the option of either paying annual CMS dues or paying higher cryopreservation minimums. The last decision in particular should have some positive effects for (potential) younger members who usually can take out substantial amounts of life insurance for only a modest monthly premium. It will also provide a strong incentive for members to remain funded well above the current cryopreservation minimums. Last, but not least, Alcor will also become somewhat more flexible in accepting different kinds of funding (for example, 50% cash and the rest in assets), which can make a big difference for older members who can no longer increase their insurance policies. These changes do not mean that Alcor has become inexpensive by any means; we still are losing too many members due to affordability issues. More progress will be needed.

Member retention, however, is not only about affordability and cost. Members should also feel involved and appreciated by the organization. On the financial front Alcor has made a step towards recognizing

long-term members for their support in the form of membership discounts. But there are a lot of other ways to strengthen the bond between Alcor and its membership.

One of the unintended consequences of standby and stabilization services transitioning from a member / volunteer basis to a paid / professional basis is that one of the major reasons for Alcor members to get together, standby training, is no longer that important. While there is the occasional regional social gathering, there has not been a deliberate effort to stimulate and encourage local members to get together. For example, in regional areas that used to be hotbeds of cryonics activity and that still have a lot of members, like New York, there is little physical or social cryonics infrastructure left. For most members, I suspect that the occasional meeting in California, or a conference, is not going to cut it. If we want members to feel more involved with our organization we need to think of new ways of bring them together, either through actual meetings or online. The popularity of the annual Teens and Twenties events indicate that many members thoroughly enjoy more interaction.

Also, recognition for long-time membership can have many forms. Membership discounts are a good start but what about invitation-only gatherings for

long-time members at Alcor? Flying big donors in to observe the progress made at the facility and in introducing new technologies, and giving them more opportunity to provide feedback on important strategic decisions would be a great start. For too many older members, Alcor has simply become an organization that sends them monthly and annual invoices.

The most important recommendation that I would like to make is that Alcor should have something to offer to members *before* they are cryopreserved. Or to put it another way, people should feel that it also makes a lot of sense to join Alcor while "alive." For starters, there is interaction between like-minded people but we can also think of offering additional benefits that are exclusive to Alcor members; complimentary magazines and newsletters from like-minded organizations, discounts on conferences and events, affordable access to state-of-the-art physiological monitoring or alarm systems, a designated Alcor email address and secure data storage for each member etc. Alcor membership should not be perceived as a desperate attempt to escape the current limitations of medicine to get launched into an unknown, distant future, but more as becoming part of a smart and forward-looking community that is *creating* that very future. ■

CEO Update

By Max More



COST REDUCTIONS FOR ALCOR MEMBERS

The cost of Alcor membership has fallen considerably due to four measures that were passed at this year's Annual Meeting in September. If you are a member who has been paying the full rate (with no discounts), and if you have or will arrange cryopreservation of \$20,000 over current minimums, you will cut your costs by \$240 per year. That's about 31%. Here is a summary of the four proposals that were adopted and their implications:

Reduction in membership dues:

Starting January 1, 2015, dues for Alcor cryopreservation members paying the full rate (currently \$590) will be **reduced by 10%** (rounded to \$530). Dues for members receiving any discount will not be changed. This reduction follows a 5% reduction a year ago. From 2013 to 2015, the full rate of dues has declined from \$620 to \$530.

CMS waiver: The Comprehensive Member Standby (CMS) fund enables Alcor to provide standby, stabilization, and transport services to all members in the United States and Canada. This is a critical part of the cryopreservation process. The CMS has been funded by a fee of \$180 per year. The CMS fee will now be waived for all members who have at least \$20,000 in funding above current cryopreservation minimums. In other words, to qualify for the waiver, you would need at least \$100,000 funding for neuro, and \$220,000 for whole body. The CMS waiver should be especially

helpful to younger members who can get the additional funding at very low cost.

Lower international surcharge: Until now, Alcor has added surcharges for the cryopreservation minimum for members outside the USA and Canada to compensate for higher response and transport costs. After reevaluating these costs—and despite a recent commitment to providing a higher level of response—Alcor is reducing these surcharges. The former surcharges were \$15,000 for the UK and \$25,000 for other countries. The new, universal surcharge is \$10,000.

“The cost of Alcor membership has fallen considerably due to four measures that were passed at this year’s Annual Meeting in September.”

Alternative funding methods: Until now, Alcor has accepted only highly-assured means of payment such as life insurance, trusts, or prepayment for cryopreservation minimums. We will now accept, on a limited basis, alternative funding methods. Here is the proposal that was passed at the September 13, 2014 board meeting:

On an individual basis, Alcor will accept partial payment for cryopreservation from

alternative funding methods such as real estate, 401(k) plans, and bequests at a 50% discount from net assets in order to allow for risk. These alternative payment methods may be used only up to a maximum of 50% of current cryopreservation minimums. Acceptance of alternative funding methods in any individual case is subject to review by Alcor and will be approved, if at all, only after checking for possible conflicting claims, after attempting to verify the current value of assets, and while putting in place regular checks on future value.

This measure should be especially helpful to older members and those with health conditions that make purchasing additional life insurance prohibitive or impossible.

How quickly or slowly have membership dues risen over the years? Back in early 2013 I calculated the annual average rise in membership dues since 1986 as 4.28%. With almost two years added to that period—and two successive reductions in dues—that figure has shrunk to 3.42%. The reduction is considerably larger if you count CMS dues and are getting the CMS waiver by adding \$20,000 to the existing funding minimum.

Looking at the last 20 years, from 1995 to 2015, dues went from \$398 to \$530, an annual average rise of just 1.45%. These numbers do not count the reductions for many members for long-term membership.

So long as we continue to grow and manage our finances effectively, I'm

hopeful that membership dues will either rise less than inflation henceforth or actually fall over time.

ONWARD!

People involved in cryonics seem to focus on the negatives most of the time. And that can be a healthy, useful thing. We need to acknowledge our shortcomings, the slowness of our growth, how we aren't improving our procedures as fast as we would like, and so on. We should also take time periodically to acknowledge and reflect on all the things that are going *right* in cryonics from an Alcor perspective.

For instance, Alcor has been receiving a considerable amount of media coverage. The vast majority of that has been primarily favorable. Along with sustained marketing and communication efforts (within the constraints of a minuscule budget), membership growth has restarted. If we keep downward pressure on the cost of dues and cryopreservation minimums and maintain or build on our communication efforts, we should be able to raise growth above the levels seen in recent years. We have finally reached the 1,000-member mark.

At the same time, we have built and maintained a strong team that, historically speaking, is remarkably harmonious. By keeping highly experienced and skilled team members with us, we develop deeper bench strengths and preserve institutional knowledge. We are also benefiting from the resources of our major partner, Suspended Animation, as well as the research work of several organizations.

Alcor continues to improve our procedures and processes in innumerable ways. These are too many to list, but include Bonnie Magee's continuing improvements to accounting and inventory control, Steve Graber's technical upgrades such as computer control of the perfusion pumps, and improved resilience such as created by our backup generator and improved process documentation. The CT scanning project has begun a new era of heightened objective feedback on the quality of our procedures. Reflecting the real process improvements and the overall tone of media coverage, we are experiencing better

relations with medical professionals and researchers. These include hospital and hospice personnel and executives and leading surgery researchers.

Despite recurrent consternation about Alcor's financial future, we are looking in good shape—not only relative to other cryonics organizations but absolutely. Certainly, we should not relax, but consider this: For years, Alcor ran in the red, sustained only by unusual contributions. This year we are again seeing a positive operating budget. Even if we have zero case income for the rest of the year, Alcor will have a surplus of at least \$216,000. With average case income, the budget is expected to have a surplus for 2015 of at least \$253,000.

The Patient Care Trust Fund (PCTF) is far healthier than that of any other cryonics organization, with growing investments, now reaching almost \$9 million and total assets of \$11.7 million (as of August 31, 2014). (I should note that no other organization even has anything like the structure and protections of the PCTF.) The Endowment Fund continues to grow and, now that the IRS has granted tax-exempt status, may be set for considerable expansion in the near future. Finally, our underfunding liability has improved vastly over the last three years or so. The underfunding balance has improved by \$9 million since September 2013 and by about 50% since 2011.

ROBUSTNESS

As we know—contrary to an apparently common misconception among the public—Alcor requires no electrical power in order to maintain patients at liquid nitrogen temperature. However, a power outage could cause us problems from minor to severe. An extended power outage at the wrong time would require us to bypass the automated system and do manual fills of the dewars. It would also take out our alarms, level monitors, room vents (automatically activated if too much air is displaced by nitrogen), and security cameras. More troubling would be a loss of power during surgery and cryoprotection.

The power goes out too frequently in the Scottsdale Airpark. For these reasons, I

tasked Steve Graber with acquiring quotes from several contractors for a back-up generator. Work on installing the generator began on March 31 and was completed on April 15. A 91-minute power outage on September 28 provided a real-world test of its performance. During that time, the fuel gauge went from 75% full to 70% full. That indicates that the generator would run for 30 hours if fully fueled to start. This was a pleasing performance especially because a cooldown was in progress at the time.

RESEARCH

Alcor Research Center (ARC) sponsored Natasha Vita-More's research project "Persistence of Task Memory in Vitrified and Revived *C. Elegans*." The project has been completed and its scientific paper addressing retention of memory after cryopreservation and reviving is being prepared for publication. This research has established a method for studying the results of a learning protocol, demonstrating long-term memory retention of the adult simple animal, *Caenorhabditis elegans*, after vitrification and reviving. This study provides new knowledge to the field of cryopreservation and we consider such findings to be a preliminary step in ascertaining the preservation of memory of simple animals undergoing vitrification. Working directly with Vita-More was scientist Daniel Barranco of the University of Seville, and Alcor's team of Hugh Hixon, Steve Graber, and Mike Perry.

INTERNATIONAL

Alcor's mission of saving lives through cryonics is global in scale. But the world is large and Alcor small. That means we must focus our international efforts. Alcor's international goals currently revolve around spurring membership growth in Britain, Canada, and Germany. Other countries are welcome but these three look most promising for building response capabilities (by providing equipment and training), contacts, and membership. In pursuit of those goals, I have recently visited Toronto, Canada, and Dresden, Germany, and will be visiting London and Sheffield in England on November 14 and 15. (Our Medical Response Director,

Aaron Drake, accompanied me to Toronto and provided training, and will be doing the same in England.)

Canada: A few months ago, after considerable difficulty with one shipping company, we finally switched shippers and sent off the full kit to Canada. Christine Gaspar (president of the Cryonics Society of Canada) generously offered to host the kit, including medications and cryoprotectant, to enable us to respond more effectively to Alcor members across the border. Alcor now has a well-stocked kit in the Toronto area of Canada. This allows us to respond in an emergency to our 42 Canadian members without having to worry about equipment and supplies being delayed at customs.

We followed up the provisioning by making a trip to Toronto from August 14 to 18. After having to leave the airport for an unexpectedly imminent case, Aaron joined me on the 15th. The purpose of the visit was primarily to provide training for the Cryonics Society of Canada (CSC) group. CSC is a volunteer organization consisting of both Alcor and CI members. It was also my goal to establish a stronger Alcor presence in the area and to talk with CSC members and help them better appreciate the benefits of Alcor relative to other organizations. From several conversations, it was clear that many cryonicists do *not* in fact understand the differences.

The training session was organized by Christine Gaspar, an Alcor Associate Member. Aaron and I (as well as Ben Best) were graciously hosted by CI member Ilir Dema and his wife. On Friday, Christine drove me to see where she is storing the Alcor kit a little way outside of Toronto. That evening I enjoyed talking to about a dozen CSC members over dinner.

The Saturday training session, conducted by Aaron, elicited highly positive feedback. On Sunday, we attended the annual CSC summer party at home of Alcor member Allan Randall. In talking with several people, it became clear to me that no one was aware that **we offer up to \$10,000 to relocate to Scottsdale when terminal.** Several people raised the question of relocation from Canada when the time comes. This experience reinforced the thought that we

need to repeatedly communicate crucial information like this to our members in *Cryonics* magazine, in mailings, and in our online forums.

Germany: The German Society of Applied Biostasis (DGAB) is a substantial group with around 80 members and the size of the German population (around 81 million) suggests room for growth. Germany is the most obvious candidate for a base for improving Alcor's capabilities in Continental Europe, complementing the United Kingdom across the channel. With that in mind, in October I traveled to Germany to participate in a cryonics symposium organized by the DGAB. Although the travel time was almost as long as the 2.5 days I actually spent in Germany, the trip was well worthwhile.

Despite air traffic control and weather problems in Chicago causing me to miss my flight to Munich, a hasty rebooking through Frankfurt meant I arrived at the symposium's location, the Dorint Hotel in Dresden, only two hours late (minus luggage) on Friday 10/3. The following morning, I gave the opening talk of the symposium on "How to Sustain an Organization for Over a Century" and later participated in a panel discussion of cryonics in science and society.

During the weekend, we discussed the issue of whether Germany should strive to create a local patient storage capability. I made the points that, first, there are clear economies of scale to reap from centralizing storage in the USA, both at Alcor and CI. Second, it may be better to first focus on developing capabilities for standby, stabilization, and transport (SST). German cryonicists may be more willing to trust in the long-term proven capability of US-based organizations to maintain patients. A counterpoint from local members was that having storage locally will powerfully focus attention and strengthen local organization. Alcor's current plan starts with looking into augmenting local supplies and equipment, including providing a tested whole body dry ice shipper, along with a neuro dry ice shipper.

Australia: For a couple of days starting May 6 we enjoyed a visit from Peter Tsolakides from Australia. Peter

is deeply involved with Stasis Systems Australia and is director of the sister organization, Cryonics Services Australia. Peter impressed me as an individual with an admirable combination of skills, both engineering and financial, and a strong commitment to cryonics. His visit turned out to be remarkably timely. During just a couple of days, he was able to observe the delivery of a new Bigfoot dewar and the rapid response for and cryopreservation of our latest patient.

I suspect most of us would agree that we are massively challenged by the prospect of adequately responding to the emergency needs of Alcor members in Australia. Plenty of room exists for us to establish a cooperative relationship with local organizations. Over the short and medium term, it seems desirable for Australians to make standby, stabilization, and response arrangements with a credible local organization. Such an organization is unlikely to immediately gain great confidence in their ability to keep patients cryopreserved for decades or longer. Alcor has a 42-year history and relatively great organizational and financial strength. This opens up obviously beneficial opportunities for all parties.

"The DGAB voted to bestow the Ettinger Award on Alcor director Saul Kent in recognition of his long-standing and unwavering commitment to and support of cryonics."

ETTINGER AWARD

The DGAB voted to bestow the Ettinger Award on Alcor director Saul Kent in recognition of his long-standing and unwavering commitment to and support of cryonics. The Award is given for outstanding achievements in cryonics and was previously bestowed on Robert Ettinger in 2010. I think the German group made an excellent and well-deserved choice.

TECHNICAL AND OTHER IMPROVEMENTS

At the Annual Meeting, we discussed various options for improving feedback on the quality of procedures during stabilization and during surgery and perfusion. During stabilization, it seems useful to use capnography in the form of end-tidal CO₂ monitoring (ETCO₂). The consensus was to use the digital system. We are currently looking at the cost of digital systems that record and those that do not. We are also investigating the cost and availability of doing our own testing on a system for tracking pH levels and look forward to comparing notes with SA which is doing its own testing. We will also look into what equipment and skills are needed to begin taking tissue samples, starting with the spinal cord, to be studied using micrographs, histology, and differential scanning calorimetry.

At the last meeting we also learned new information about the optimal temperature for intermediate temperature storage (ITS). We ran out of time before any real discussion about the cost of ITS and when to offer it to members. We also did not hear much about whole body ITS systems and what it would take (and cost) to make those available. We should be able to make progress on this before the end of the year.

Time-lapse photos of Alcor's facility would show continual upgrades over the last few years: cubicles replaced with a welcoming reception area, freshly painted office-area walls, retouched baseboards, more organized patient care bay, better organization for ongoing research projects, and so on. The latest and most obvious upgrade: We took down a wall to open up a larger space where we display infographics for visitors. Visitors always walk through this area on the way to the conference room. The narrow doorway leading into the room that houses the copier and stacks of Alcor literature had always felt restrictive. Now that we have more infographics ready and other display items, we have been able to create a more effective space for them.

One interesting and promising innovation during the cryopreservation of our 124th patient on May 6-7 was the use of a GoPro camera mounted to the chest

to record the SST procedures. A head-mounted display has previously been used by both Alcor and SA teams. The problem with that is the considerable amount of head movement that usually occurs, making watching the recording a nausea-inducing experience. The chest moves far less. We found the video output of the GoPro to be of remarkably high quality. (The audio quality is less so, although a firmware update may improve that.) We purchased an additional GoPro to use as a roaming camera in the OR, to acquire a multi-angle view of proceedings. This may best be worn by the scribe (usually myself) since that person keeps an eye on many aspects of the procedure.

DIANE: 10-YEAR VETERAN

Diane Cremeens, Alcor's Membership Administrator, has been with us now for ten full years. Diane is consistent, reliable, and indefatigable. We threw a modest party for Diane and hope that she continues as part of the Alcor family for years to come.

FINANCES

As was noted at the September meeting, we have a fair number of wealthy members but most of them show no evidence of being inclined to pay any more than necessary to support the organization and to be cryopreserved. The idea was raised of applying market segmentation. This means figuring out what kinds of things wealthy members would be willing to pay extra for. This implies both coming up with a list of suggestions to present and also asking them if they have any special arrangements in mind. Doing so would provide additional value to these members while strengthening the organization as a whole.

Following patient care savings from lowering our liquid nitrogen bill, and the disappointing results of our test lining the dewar plugs with foil, we are now looking into the cost-effectiveness of adding vacuum-jacketing to LN₂ transfer lines. We have already put out feelers on this issue and will be following up to find a suitable expert to consult.

MEMBERSHIP GROWTH

After a frustrating period of zero or negative

growth, in July we finally set a new record for full cryopreservation membership: 988. On September 24, for the first time for Alcor and for any cryonics organization, full cryopreservation membership reached 1,000. This milestone has taken so long to reach that I want to dramatize it as the Alcor Millennium.

Let me sketch what looks like a crazy goal: **Grow Alcor membership one hundredfold within 15 years.** That is 10,000% growth. Is it even remotely plausible to think that a well-funded, well-designed marketing program (combined with ongoing reductions in membership dues and downward pressure on CP minimums) could achieve that? Consider that it would take annual growth of 36%. Given recent growth rates around 2%, this may seem utterly insane. But the fact is that Alcor has grown at a comparable pace in the past—and without any major marketing campaign. From 1988 through 1992 Alcor grew at rates between 25.7% and 44.7%, averaging 32.4%.

We have some members of considerable financial means. Suppose they can be inspired and convinced to fund an effective marketing program. Even 10,000% growth would not so much as bring us to 1 person in every 3,000 as a member. Even at a much more modest 15% growth rate, Alcor would grow 800% in 15 years. A larger organization would mean economies of scale and therefore lower membership costs, and more resources for research, process improvements, and protection against threats of all kinds. Yes, this is a stretch goal. Let's do some stretching!

PUBLIC COMMUNICATIONS

On Thursday April 3, I was interviewed on film for Al Jazeera America (a newly launched competitor in the cable-news market in the United States). They had interviewed the researchers at UPMC Presbyterian in Pittsburgh who are planning trials of surgery performed at 10 deg C. Science and Technology Correspondent Jacob Ward was interested in how cryonics procedures compare to this research. He had also interviewed surgeon Peter Rhee at the University of Arizona in Tucson, who helped develop the technique and told

me that Rhee is very receptive to cryonics. Rather than trying to distance himself from us, he noted the commonalities and expressed optimism for the prospect of eventually suspending patients for days and months.

Here's an intriguing and promising quote from Peter Rhee:

"After we did those experiments, the definition of 'dead' changed," says Rhee. "Every day at work I declare people dead. They have no signs of life, no heartbeat, no brain activity. I sign a piece of paper knowing in my heart that they are not actually dead. I could, right then and there, suspend them. But I have to put them in a body bag. It's frustrating to know there's a solution."

We invited Dr Rhee to come and visit Alcor. He did just that on the morning of Wednesday June 25. Several of our contract surgeons and most of the Alcor staff were in attendance for his visit. Dr Rhee was interested in and sympathetic to what we do.

Arizona Science Center tour:

The AZSC puts on special events for its "Director's Circle" and "Science and Cultural Connection" contributors. They contacted us about having a special tour of Alcor for this group of wealthy and science-positive people. That seemed like a great opportunity for us to raise visibility among potential new members of means in the area. Several staff members worked to make it a success. On the evening of Thursday March 27, we catered for 30 to 35 guests, and I talked to them for over an hour. Everyone appeared to be fascinated, and I didn't notice anyone leaving early. We spruced up the facility, probably making it look better than it ever has.

Other outreach efforts included giving a talk on life extension and cryonics at the Tempe Center for the Arts, handing out dozens of free Associate Member cards at the Transhuman Visions conference, and a talk at Space Access, the International Space Development conference on May 17, at a panel organized by Natasha Vita-More. We agreed to be involved in an innovative British campaign, Remember a Charity, which is offering a cryonics prize. The estimated reach of the campaign is 28,334,722 based

on daily print circulation and monthly online readership. Alcor members will have received new membership cards—along with Free Associate Membership cards that we urge you to pass on to friends and family members who are open to the idea of cryonics.

Thanks to the efforts of Media Architects, with whom I have been working closely, we have dramatically multiplied the number of "likes" on the Alcor Facebook page, now exceeding 10,000. We are using our Facebook presence to steadily boost our videos on the Alcor Cryonics YouTube channel. We have also finalized "look-and-feel" upgrades to the Alcor website. You should see the new designs before this issue reaches you.

We have also created, put online, and promoted a series of FAQ videos and member video testimonials, all of which are gathered on the Alcor Cryonics YouTube channel. In the Alcor building, we have upgraded the visitor experience by creating a new display area in which we've placed new infographics: "What Is Cryonics?"; "History of Cryonics"; and the Cryonics Pyramid.

We have done many interviews for the media since my last update for *Cryonics*. I will therefore briefly list some of them rather than commenting in any detail:

Filming: A crew for a Showtime docuseries, Morgan Spurlock's, *Inside Man*, spent two days at Alcor on March 19-20. This was shot as a true documentary style show, with no narrators and resulted in a segment of the show devoted entirely to Alcor. We also did filming for a PBS show hosted by neuroscientist David Eagleman. On March 24 I was filmed by ESPN. I had been resistant to this proposal since the focus initially was on Ted Williams. However, the producer seemed friendly and accommodating. In the end, there was almost no discussion of Williams other than to acknowledge that we have him at Alcor. Instead, I explained cryonics and described how it works; answered questions about how my background in philosophy relates to my work in cryonics; explained Alcor's goals and progress in cryonics; and discussed the challenges we face and what our members are like. The shoot included a

tour of the facility.

Other media includes: German Servus TV for a science documentary to be shown in all German-speaking countries and online; Swiss National Radio; a BBC column called *Tomorrow's Lives* about "people who are having futuristic experiences today;" The Project, Network Ten, Melbourne, Australia; interview with Sun Media, Canada's largest newspaper chain; Multimedia TVE, France; interview with Russia Today TV; interview for Germany science TV program; *Die Welt/Welt am Sonntag*, *The Atlantic*, *Arizona Republic*, MSN, and media in Spain. We also received quite a bit of media coverage revolving around the August 28th cryopreservation of long-term Alcor member Hal Finney. Hal is well known in some circles as a cryptographic activist and as the very first person to receive a Bitcoin. Hal's story has been covered by *Wired*, *The Economist*, the *New York Times*, *Forbes*, *Gizmodo*, and the *Daily Mail* among others as well as in many online forums.

OTHER

Early this year we had an unexpected visit from a group of nine staff members of the Scottsdale hospice whose services we have used twice recently. Fortunately, I was available and gave them a tour and answered their questions. This was a welcome opportunity to familiarize these valuable contacts further with our procedures and needs and to ensure we can work together smoothly. Everyone seemed interested and sympathetic, and I was asked what the hospice could do to better meet our needs.

We have had nine human cryopreservations this year, as of October 12. You will find summaries of these cases on the Alcor blog. All of them have been or soon will also be covered in more detail in published case reports.

I asked Aaron to update our analysis of Alcor's standby rate over the last five years or so. Excluding post-mortem cases, suicides, and last-minute signups, we have a standby rate of over 85%.

The date is set for **Alcor 2015 conference**: October 9-11, 2015. ■

QUINTESSENCE: REMEMBERING JERRY WHITE

By R. Michael Perry



Jerome B. White was a long-time cryonicist and cofounder and director of the Bay Area Cryonics Society (now the American Cryonics Society). In 1989 he became an AIDS patient, and in 1994 at age 55 he was cryopreserved. Before this event, in 1992, he supervised the cryopreservation of his mother, Susan Marcus, and wrote about it in an article he titled “Quintessence.” Jerry had many talents, and his story is a fascinating one. As usual I can only cover some highlights.¹

Born in Texas in 1938, Jerry moved from place to place as an infant military dependent and lived in various states until reaching adulthood and, by the late 1960s, settling for good in California. His father, Jerome Butler White Sr., was a graduate of the U.S. Naval Academy in Annapolis, Md. (class of 1935), and held the rank of Lieutenant Junior Grade until retiring from the service in 1941, a few months before the start of World War II. The elder Mr. White and Jerry’s mother, Susan Adelaide Nielson, were married in 1937 but appear to have soon separated. Mrs. White’s second husband, Groome Evans Marcus, Jr., who went by his middle name, was also a Naval Academy graduate, in the same graduating class as her first husband, and a career Navy officer, retiring in 1963 and dying in 1978.²

As a child Jerry was precocious, and impressed his teachers with learning, on his own, some rudiments of speaking and reading Russian. After high school he

attended the University of New Mexico in Albuquerque, then briefly started on a path taken by his father and stepfather, serving in the Navy from 1957 to 1959. There he worked in a ship’s Combat Information Center (CIC) as a watch-section supervisor (radar) and as Master-at-Arms. Honorably discharged with a captain’s commendation, he returned to UNM and obtained a B.A. degree in philosophy in 1966. He then studied at the University of California, Berkeley, his main interests being computer science and education.³

Around this time an event occurred that would change his life profoundly: the first encounter with cryonics. Long-time friend and associate Jim Yount remembers it this way: “Jerry told me that he learned of cryonics by reading Ettinger’s *The Prospect of Immortality*, not long after the paperback version of the book came out [MacFadden-Bartell, 1966]. I think he said he was living in Arizona at the time. He told me that he was immediately struck with the concept presented in the book and started reading as he walked to the cashier, and continued reading as he walked out the door.”⁴

Jerry’s involvement in cryonics gathered momentum. In December 1969 he was a cofounder, with three others (Dr. M. Coleman Harris, Dr. Grace Talbot, and Edgar Swank), of the Bay Area Cryonics Society (name changed to American Cryonics Society, ACS, in 1985). He served as its president from 1971 through 1982, in addition to other, continuing involvement.

Another important event, in March 1969, was Jerry’s presentation, at the Second Annual Cryonics Conference held in Ann Arbor, Michigan, of his paper: “Viral-Induced Repair of Damaged Neurons with Preservation of Long-Term Information Content.”⁵

This paper, though apparently well-received, was not reprinted in any contemporary journal or newsletter, and only recently has been brought to light and published. It is a remarkable piece of work, a pioneering effort on the difficult problem of how future technology is likely to carry out the resuscitation of a cryonics patient, in which a state of consciousness and good health must be restored for the process to be considered successful. This all-important issue was well-recognized by cryonics founder Robert Ettinger, whose groundbreaking book, *The Prospect of Immortality*, published just a few years before in 1964, includes a chapter on “Repair and Rejuvenation.” There he aptly notes, “We need assurance that we can be revived, and not only that; if we die sick, we want to be made well; if we die broken, we want to be made whole; and if we die old, we want to be made young.”⁶

Ettinger outlines a tentative plan for recovery of a patient from cryopreservation, after first noting that most of us will have died from disease or old age. “The *immediate* cause of death will usually be the failure of some vital organ. The future medicos, then, will perhaps proceed somewhat as follows:



Jerry White, about age 30. Photo Credit: JY1, 5.

first, either restore or provide respiration and circulation; next, repair or replace the defective organ that was the proximate cause of death; then cure any acute disease and make any other urgent repairs; lastly, and at leisure, make a general overhaul and rejuvenation.”⁷

A first impression is, *well and good, but this is far too easy*. It overlooks the fantastic problem, which no doubt it would be, of restoring a cryopreserved patient to a warmed-up state similar to what existed just after clinical death occurred. Assuming you achieved *that*, by whatever method, then *perhaps* you could proceed somewhat as above, using advanced medical techniques not now available to do more than just briefly resuscitate the patient, as might happen under the best of circumstances today. It seems likely, though, that overall a different approach will be used, in which a substantial part or nearly all of the recovery/repair process will be carried out

well before any warming-up and resumption of biological or other consciousness-supporting function. But this sort of thinking was in the future.

Ettinger, however, was well aware that the problems with resuscitation would be formidable and too much reliance should not be placed on any tentative suggestions, including his own, as to how it might be carried out. Nevertheless, it *did* seem reasonable that *some* method would be found—that was a major point of his book. In particular, the brain must be restored to healthy functioning and probably could be. Here Ettinger speculates: “... if brute-force methods are necessary, it is not inconceivable that huge surgeon-machines, working twenty-four hours a day for decades or even centuries, will tenderly restore the frozen brains, cell by cell, or even molecule by molecule in critical areas.” Already there was a basis for thinking this could be possible.

“Individual cells have already been successfully operated upon, e.g., transplanting nuclei into enucleated amoebae, even cross-species!”⁸

Still, it is quite a leap to imagine how the “huge surgeon-machines” would operate. Instead, thought Jerry White, why not consider very small machines rather than very large? If in particular you need to work at the molecular level, and you very well might to do brain repair, then maybe the answer is molecular machines! Are such machines possible? Yes, and they already exist in nature, one example being viruses. True, viruses are associated with disease, vaccinations, and in general how to better protect ourselves against these marauding molecular mites, but they might also be harnessed for useful purposes. Reasons for thinking so are summarized in the paper and come from various sources.⁹

At the theoretical end there is the work of Turing and Von Neuman which shows the

possibility of idealized machines capable of a very wide class of behaviors, including self-replication and self-modification. It all depends on how such devices are programmed. (A well-known example of such a machine actually constructed is the modern computer, essentially an “anything box” which is able to do everything from language translation to physics to onboard guiding of a self-repairing robot, all depending on its coded instructions or program. Fully self-replicating robots comparable to natural organisms are not yet feasible but do seem possible in principle, if we should desire to make them.) At the biological end we find DNA, RNA and other molecular species which, in living systems, read and write information and carry out programmed construction and alteration, in surprising conformity to the visions of the computer theorists.

So basically, viruses might be altered—in effect “reprogrammed,” to carry out tasks that, among other things, would be useful to cryonics. One such task would be the repair of expected damage in the brain of a warmed-up cryonics patient. The damage could include effects of cryopreservation and warming, as well as prior effects of disease or trauma. If appropriately programmed viruses were introduced into the vascular system of such a patient, who might be maintained with metabolic support after warming to above-freezing temperature, the little machines could carry out their restorative work. That the task might be formidable is not overlooked. The natural tendency for further degradation to occur in the tissues, including neural tissue, could provide quite a challenge to the viruses just to keep things from getting any worse. This problem would be aggravated by the fact that a virus must invade a host cell to carry out its operations. (In particular, the cell would have to be at least minimally viable to be worth invading in the first place.) In addition to the possibly formidable problem of stabilization of the tissues, the hard-working viruses would be heavily tasked with making improvements, correcting damage and eliminating pathologies, to restore the desired state of health and, ultimately, consciousness. One particular problem that Jerry notes, the possible loss of information-bearing structure in the brain as the viruses invaded, might be counteracted by an ingenious mechanism of copying and storing this

information in viral RNA, where it could be regurgitated for a later stage of the restoration.

Jerry concludes: "I hope that the method cursorily outlined here is still concrete enough to encourage those who are concerned with problems of repair of brain damage, whatever its origin." In all, the proposal of viral repair is ingenious and deserves much respect as the pioneering effort it is. It would be years before others would propose anything similar or better.

Jerry's proposal has weaknesses, of course. It would surely be better, for cryonics resuscitation, to do much of the work at cryogenic temperatures where there would be no threat of deterioration as noted in the case of ongoing viral repair. (This would be true at least for cases of today and in the past, where there is no expectation of a restoration to global biological functioning through simple warming.) Such a prospect seems realistic if we can depend on nonbiological mechanisms which could operate at low temperature, which in turn does not appear to challenge any laws of physics. If we did attempt viral repair, the special requirements such as needing a host cell might prove problematic.

To circumvent this problem, in 1977 Mike Darwin proposed the "anabolocyte," a specially designed and programed *cell* to carry out repairs. The cell, a standalone biological entity with no requirement of a host cell, would have obvious advantages over the dependent virus, but still there would be the difficulty of having to do all the repairs at relatively warm temperature using the vasculature. (With the help of antifreeze, however, the operating temperature might be lowered to as far as -20°C, Mike proposes.) In the 1980s Eric Drexler and others developed the more general concept of nanotechnology, based on earlier work of Richard Feynman, in which manipulations at the atomic and molecular level could be carried out by devices not limited to biological mechanisms and capable of operating at cryogenic temperatures. We are, of course, still awaiting an actual implementation of such a concept, but no fundamental obstacles appear to exist and progress is continuing. Jerry's effort still stands, an important early milestone along this path to make dreams reality.¹⁰

In the workaday world, Jerry was a lead designer for Sterling Federal Systems, Inc.

(Sterling Software) of Palo Alto. While there, 1983-1992, he worked on NASA projects of which Sterling was a contractor, including a computer program to analyze the atmosphere of Mars. He also worked on programs connected with the design of tilt-wing aircraft. Other places of employment included the University of California's College of Natural Resources, Honeywell Information Systems in San Francisco, the University of New Mexico at Albuquerque, and the General Programmed Teaching Corporation.¹¹

Back to cryonics, in December 1991 Jerry's mother, now 83 and stricken with cancer, had but weeks to live. Jerry naturally wanted her cryopreserved, she wanted more traditional burial. Jerry provided what care and comforting he could, helped by others, as December drifted into January. Almost too late, a compromise was reached. Though she would be buried, a tissue sample, in this case her brain, would be taken and donated to science. Donating to science in this case meant, of course, the brain would be cryopreserved and stored indefinitely after first being cryoprotected according to the best possible procedures. She would, in short, become a cryonics patient and in-line for eventual resuscitation in a restored body, if and when such a possibility materialized.¹²

Jerry was a firm advocate of the neuro option in which the brain, the "quintessence" containing the vital personality elements, is preserved even though most of the rest is discarded. (The rest of the head provides convenient, safe packaging and is usually included in the preservation, but a brain-only, as in the case of Jerry's mother, might offer other advantages such as being more acceptable to noncryonics family members, along with reducing the cost.) The main rationale, of course, is that the process is less expensive and more convenient, and the rest of the body should be replaceable by future technology, based on the genetic "blueprint" which is multiply encoded in the DNA of the preserved remains.¹³

Jerry not only did the writeup on his mother's preservation, in a piece appropriately titled "Quintessence," he was the principal, star performer. The story he tells is a moving one, alternating between the deep affection and tender care he showed to his loved one in the painful days prior to her arrest, and the clinical details of the various procedures afterward, which he and others were able to perform with professional detachment. For the others involved, including long-time cryonics veterans Jim Yount and John Day, it might have been more routine and relatively easy; for Jerry, it was clearly no small struggle.¹⁴

Yet Jerry took special pains to see that everything was done right. He was at his mother's side at her home the evening of January 8, 1992, when she arrested. He packed ice around her head and administered mouth-to-mouth resuscitation when equipment for the purpose proved unworkable. Mortuary personnel were summoned. Taken to their facility, she was washed out then perfused by them with cryoprotectant, with Jim Yount and Jerry supervising and Paul Segall advising by telephone. She then was placed in a cold room until the next morning, while Jim and Jerry got some rest. Next, an autopsy was performed under Jerry's supervision, in which the brain was removed, placed in a tub of chilled cryoprotectant, and the whole packed in a larger container and cushioned with crushed ice. Jerry also took pains to videotape the whole procedure. The brain in its packing was taken elsewhere and, with further preparation, cooldown to dry ice temperature was started. Around 6 p.m. January 9, with that process well



From left: Robert Ettinger, Jerry White at the ACS 20th Anniversary dinner, 1989. Photo Credit: JY1, 10.



Important elders (when they were young): from left, Jerome Butler White, Sr. (father); Groome Evans Marcus, Jr. (stepfather); Susan Adelaide Nielson White Marcus (mother); Reginald Noel Sullivan (family friend). Photo Credits: Jerome Butler White, Sr., LB, 95. Groome Evans Marcus, Jr., LB, 268. Susan Adelaide Nielson, (based on) JW2, 21. Noel Sullivan, NS1; secondarily, NS2 (distortion corrections).

along and others there to continue it, Jerry finally took another break.

“As I neared home, I felt pressure building, and hardly had time to get in the door, greet my friendly but hungry cat, and hurriedly replenish her food and water, before I erupted in an unrestrained fit of tears and howling which lasted about an hour. I spent the next several hours on the phone, and around midnight watched the entire videotape (which I hope to make available to serious and interested parties for study). Sleep, when once it came, was soothingly sweet surcease, I hope on this one occasion at least, for the just.”

A few weeks later, cooldown from dry ice to liquid nitrogen temperature was carried out. Jerry commented on the difficult case: “Against what seemed to be insurmountable odds, the suspension occurred. Even with delays, the patient was perfused, though without clinical controls and instrumentation, in the usual two phases [washout, cryoprotection], and was then cooled to the temperature of dry ice within about one day after deanimation. It is difficult to generalize but, at least, clearly possible under appropriate circumstances, given adequate preparation and appropriate collaboration from noncryonics professionals, for a minimal crew—perhaps even a single cryonics staffer—to implement some sort of suspension.”

As trying as the ordeal was, it had its better moments. Jerry recounts how, even with her illness far advanced, his mother was able to have a happy Christmas a few days before her deanimation. December 25 was not just the usual holiday but had extra significance because it was also the birthday anniversary of an old family

friend, “Uncle” Noel Sullivan, who was born on that date in 1890.

Sullivan had a remarkable career: “A pacifist Irish Catholic, dramatic, passionate, generous, wealthy and socially prominent, Noel bought a fleet of ambulances, and maintained and operated it on the front in Europe during World War I ... , built the Carmelite Monastery in Carmel, California (and is interred on the premises), performed as an accomplished concert singer and instrumentalist, patronized and supported numerous writers and other artists, and provided a home for scores of injured animals in Carmel Valley at his Hollow Hills Farm, a place I recall as one of peace, joy, and beauty.” Though he had died many years before, in 1956, Jerry still remembered him “well and fondly and with a sense of kinship which has grown with the years.” His mother “repeatedly affirmed that he was the most saintly person she had ever known”

For the celebration a cake was purchased, portions were cut for the various guests present, and also a piece for Noel himself, which mysteriously managed to get a bite taken out. “All present, other than Mother’s cat Liza Jane, disavowed any knowledge of the errant bite. I hereby reaffirm my own ignorance and innocence regarding it.”

Life has its uncertainties, and Jerry, a victim of AIDS, was himself cryopreserved only two years later, on February 5, 1994 (with the neuro, full-head option he favored). According to Jim Yount, “Jerry was always a person we could count on at a suspension or standby. It somehow didn’t seem right to have Jerry as the patient: he should have been there with his friends on the standby team, giving advice, making

pizza runs, setting up equipment. One of the things Jerry did best was to keep up the morale of the other team members. When things were becoming too grim, he would crack a joke. He was always there for us, whatever his work schedule, and even when he himself was weakened from his fight with AIDS.”¹⁵

Jerry had many sides to his character and many interests besides cryonics. He was a Lincoln scholar and collected more than 500 books on the famous U.S. president. He was interested in philosopher Alfred North Whitehead and gave a presentation, “Whitehead’s Philosophy of Process,” at the Institute for the study of Consciousness, Berkeley, in 1978. He was a Libertarian Party member and a staunch advocate of personal freedom. He was active in gay rights and AIDS-related causes. He was a singer and liked to entertain at AIDS benefit concerts, where he was apparently well-received. He was a student of languages and their origins, and spoke and/or read Russian, German, French, Greek, Latin, Hebrew, Yiddish, and Modern Mongolian.

Late in life Jerry was re-united with his father, and they had good relations from then on. Jerry wanted his father to consider cryonics for himself, but when the older man died in January 1994, just before Jerry’s own deanimation, he was buried in his home state of Tennessee.¹⁶

Jerry was concerned about the amount of acrimony and infighting among his fellow cryonicians. He took a course on how to disagree without being disagreeable and how to arrive at consensus. He taught this course himself to any ACS member or Trans Time stockholder who wished to attend.¹⁷

Though Jerry was an atheist, he managed to reconcile this religious position with Judaism and joined this religion. (There are many ways of thinking about “God.”) A memorial service held after his cryopreservation was led by a member of the faith.

Much more could be said, but here I conclude. Jerry it appears is one person whose return would be welcomed by many. ■

I am especially indebted to Jim Yount for helpful consultation during writing of this article.—R.M.P.

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Dr. David Denkenberger has been an Alcor member since 2009.

MEMBER PROFILE:

DAVID DENKENBERGER

By Chana Phaedra

If you've been a cryonicist for very long you've probably spent some time thinking about the fact that if one wants to enjoy the future we should strive to ensure that a future exists. As a research associate at the Global Catastrophic Risk Institute, Dr. David Denkenberger spends his days thinking about, assessing, and planning for the myriad risks that may endanger humanity at large. An Alcor member since 2010, he appreciates that cryonicists naturally tend to care more about the future, and hopes that as more people sign up they can work to reduce global catastrophic risks.

David is one of many Ph.D. scientists to sign up with Alcor since its inception in 1972. He first learned of cryonics through an episode of *Star Trek: The Next Generation* ("The Neutral Zone") in which the crew comes across three people who were cryogenically preserved. The episode focused on their resuscitation and reintegration, and it intrigued David enough to get him thinking about cryonics.

"Perhaps I was primed to be receptive to the idea of being frozen in liquid nitrogen because I had worked with liquid nitrogen a fair amount," he says. "Besides using it to make ice cream and rockets, I was very interested in the Leidenfrost effect, where drops of liquid nitrogen float on a cushion of boiled nitrogen."

David started the Alcor sign-up process in 2009 when he found out how affordable it was. He remembers that he had already calculated that if there were no aging we

would have life expectancies of around 500 years (due to accidents). Because he thinks in terms of orders of magnitude (powers of 10) when there is a lot of uncertainty, he decided to call it 1000 years. "Then the U.S. Government requires interventions, like use of airbags, to save a disability-adjusted life year (DALY) at about \$100,000. If we say that the cost of cryonics is order of magnitude \$100,000, it only has to have a 0.1% chance of working to be as cost-effective as airbags! I thought the probability of success would be higher than that," David explains.

"Also, an even lower probability would be required if you believe (as I do) that we can be scanned into computers and have backup copies. Both of these calculations must be tempered by the chance of global catastrophic risk (losing or significantly harming civilization) or existential risk (human extinction), but I still thought it was worth it. I am a fan of Ray Kurzweil and the fact that he is signed up for Alcor was an important factor in my decision among the big three [cryonics organizations]."

Before he began thinking about cryonics and the future, David grew up outside a small, rural northeastern Pennsylvania town of about 2000 people near Scranton ("Our county had more cows than people," he declares). His parents were both math teachers, though his mom stayed at home to care for the children, which included David's two older half brothers and his younger full brother.

Having two math teachers for parents, David became quite interested in math himself at a young age, but then his favorite subject shifted to science. By sixth grade, he was already most interested in applying science and math to problems that could help humanity or the environment. That is about the same time that he began inventing, a hobby that he is passionate about to the current day.

Some of his favorite childhood memories include digging a 1,000 gallon pond behind the house with his brother and building a miniature tennis court in the garage. Besides tennis, he downhill skied and also



David with his wife and children.

recalls building huge sledding jumps with his brother. Lastly, he remembers a time when “I made the class laugh so hard with my autobiographical high school senior speech that another teacher came in to see what was the matter.”

From a young age, David has been interested in extending his life. So cryonics hasn't really changed his lifestyle in that sense, though he does think about his proximity to Scottsdale from time to time. Because he thinks in terms of orders of magnitude, David believes that he is able to prioritize interventions well. Most important, he says, is having low stress since “high stress takes more years off your life than being a smoker!”

David's wife actually grew up outside of the same town, and their parents knew each other, but they did not start dating until college. In 2003, David got new glasses, car, and wife, and he still goes on rides with all of them. He has been happily married for 11 years and has two small children. Because they are still quite young and he signed up before he had them, he hasn't really had a discussion with them about it yet. And though his wife is interested in his endeavors, “she is still contemplating the idea [of cryonics],” he says. “But I read the recent family-themed issue of *Cryonics* magazine with great interest.”

The most challenging aspect of cryonics to David is the fact that the money for his cryopreservation arrangements could be donated to reduce global catastrophic risk. “I live very frugally,” he explains, “and I'm saving money, investing, and working to figure out what the best cause is. I like to look at calculations to determine how many dollars it takes to save a life. If you reduce global catastrophic risk, you can save many lives if you value future generations as I do. However, I do believe that [cryonics] passes the cost-effectiveness test relative to the other things I do to protect my own life. And I do believe that people who sign up for cryonics care more about global catastrophic risk because they have a longer time horizon.”

David has been promoting cryonics among his friends and with presentations to his Unitarian Universalist (UU) church. “It's been interesting getting feedback from UU church members,” he says. “UUs typically do not believe in an afterlife...and are generally optimistic about the future. But apparently cryonics is still a very difficult concept to accept.”

Even so, David sees another opportunity to make a case for cryonics with the impending publication of his book *Feeding Everyone No Matter What: Managing Food Security after Global Catastrophe*, which presents alternate food supplies if agriculture is disrupted by events like abrupt climate change or nuclear winter. “Solutions range from the conventional (e.g., growing mushrooms on dead trees) to the exotic (e.g., eating bacteria grown on natural gas). I am lining up media engagements and I intend to make the connection that if more people signed up for cryonics, they would care more about the long term future, and therefore help more to reduce global catastrophic risks.”

When it comes to Alcor specifically, David has some ideas about what he'd like to see happening in the near future. Firstly, he feels that making the prices of neuro and whole body preservation better reflect the actual costs (by “dramatically lowering the price of neuro”) would open up cryonics to more people. And he thinks that membership dues should be structured more like life insurance so they would be cheaper for younger people. He argues, “I think this is reasonable because right now the cost-effectiveness of cryonics overall for older people is much higher because they are much more likely to die in a given year.”

When he's not thinking about the future, David loves hiking and biking. “In Boulder and now in Durango, I have tried to hike the equivalent vertical gain and loss of going from sea level to the top of Mount Everest and back every year. I ride mobile and stationary recumbent bikes, and the latter allows me to keep up on reading like *Cryonics* magazine.” He also invents in his free time, and has racked up about 1000 ideas for inventions. And he likes to pursue what he calls an “ultra-liberal arts” education, which he describes as “taking a course or reading a textbook in all the major fundamental and applied areas, with continuing education of listening to all the TED talks.”

Through his work on global catastrophic risk, David has corresponded with Alcor members Nick Bostrom and Anders Sandberg at the Future of Humanity Institute at the University of Oxford, but he hasn't met many other cryonicists so far. Still, if there's one thing he would like to say to other members, it's this: “The average



David and his friend Paolo hiking near Durango at 12,300 feet elevation.

expert in global catastrophic risks estimates a one in five chance of human extinction this century. If we want to increase the probability that cryonics will be successful, we should work to reduce these risks.”

For everyone's sake, but particularly cryonicists', we hope David keeps learning and is able to apply his knowledge in a way that contributes to the reduction of global catastrophic and existential risk. And we hope that his passion for this endeavor rubs off on other Alcor members and cryonicists along the way. ■

Dr. David Denkenberger (aka “3D”) received his B.S. from Penn State in Engineering Science, his M.S.E. from Princeton in Mechanical and Aerospace Engineering, and his Ph.D. from the University of Colorado at Boulder in the Building Systems Program. He is a research associate at the Global Catastrophic Risk Institute. He received the National Merit Scholarship, the Barry Goldwater Scholarship, the National Science Foundation Graduate Research Fellowship, and is a Penn State distinguished alumnus. He has authored or co-authored over 30 publications. He lives with his wife and daughters (2 and 4) in Durango, Colorado.

Preserving Minds, Saving Lives: 35 Years of the Best Cryonics Writing of The Alcor Life Extension Foundation

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Featuring stimulating articles from the pages of CRYONICS Magazine by Steven Harris, Hugh Hixon, Saul Kent, Mike Darwin, Stephen Bridge, Thomas Donaldson, Aschwin de Wolf, Brian Wowk, Michael Perry, Ralph Merkle, and many others.

Here are some of the classic articles that shaped cryonics thought and Alcor policy over the past three decades.

Why We are Cryonicists

Notes on the First Human Freezing

Dear Dr. Bedford

How Cryoprotectants Work

How Cold is Cold Enough?

The Death of Death in Cryonics

The Society for The Recovery of Persons Apparently Dead

Frozen Souls: Can A Religious Person Choose Cryonics?

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You can't really understand cryonics today unless you can appreciate how we got here. The philosophy, the history, the science and technology, the debates, the PEOPLE of cryonics—it's all here in one indispensable volume. The book will be published in 2014.

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Advanced Defense Against Cellular Aging The all-new **Optimized Resveratrol with NAD+ Cell Regenerator™**

Over 6,000 studies have been published on **resveratrol**, a compound shown to favorably alter genes that help slow the aging process. In fact, resveratrol triggers some of the same beneficial youthful gene expression activated by **calorie restriction**.¹

The all-new **Optimized Resveratrol with NAD+ Cell Regenerator™** now contains NIAGEN® **nicotinamide riboside**, a novel nutrient shown to support mitochondrial health and promote longevity pathways. This new formula provides **100 mg** of **NIAGEN® nicotinamide riboside** — an amount equivalent to almost 667 cups of milk!²

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NIAGEN® is a registered trademark of ChromaDex, Inc., Patents see: www.ChromaDexPatents.com.

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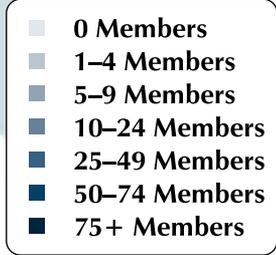
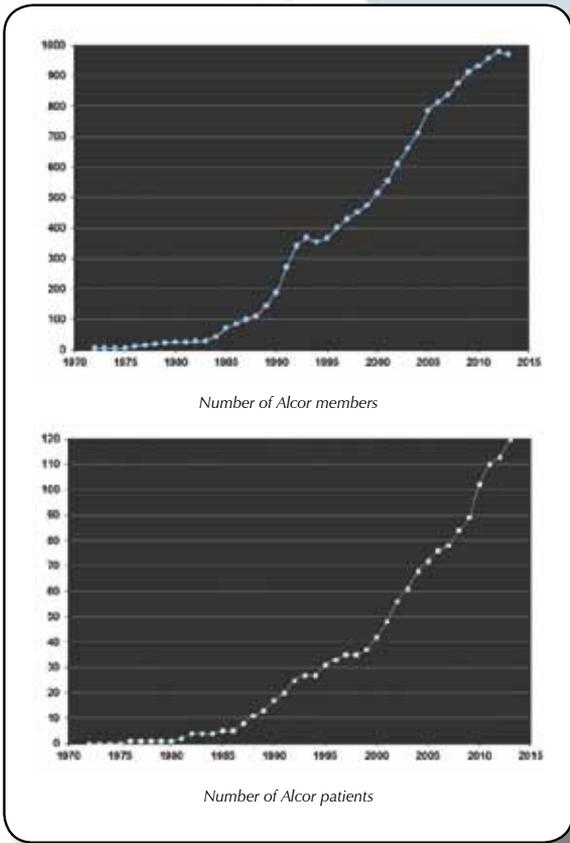
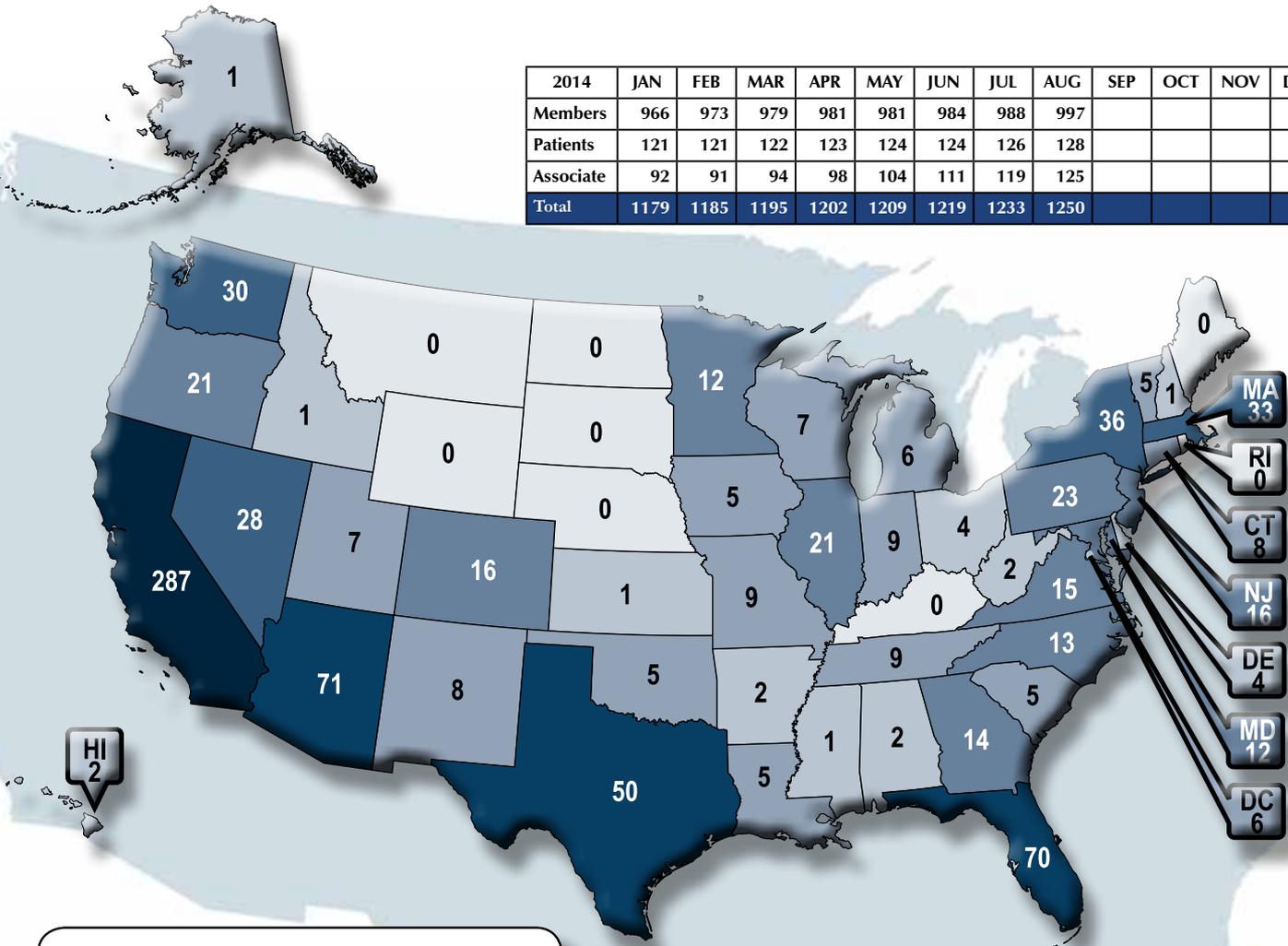
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Be sure to mention code **PIM401X**.

Membership Statistics

| 2014 | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----|-----|-----|-----|
| Members | 966 | 973 | 979 | 981 | 981 | 984 | 988 | 997 | | | | |
| Patients | 121 | 121 | 122 | 123 | 124 | 124 | 126 | 128 | | | | |
| Associate | 92 | 91 | 94 | 98 | 104 | 111 | 119 | 125 | | | | |
| Total | 1179 | 1185 | 1195 | 1202 | 1209 | 1219 | 1233 | 1250 | | | | |



International

| Country | Members | Patients |
|----------------------|------------|----------|
| Australia | 10 | 3 |
| Canada | 43 | 2 |
| Germany | 5 | 0 |
| Hong Kong | 1 | 0 |
| Israel | 1 | 1 |
| Italy | 3 | 0 |
| Japan | 2 | 0 |
| Lebanon | 1 | 0 |
| Mexico | 4 | 0 |
| Monaco | 1 | 0 |
| Netherlands | 2 | 0 |
| New Zealand | 3 | 0 |
| Norway | 1 | 0 |
| Portugal | 4 | 0 |
| Singapore | 1 | 0 |
| Spain | 3 | 1 |
| Thailand | 3 | 0 |
| United Arab Emirates | 1 | 0 |
| United Kingdom | 23 | 2 |
| TOTAL | 112 | 9 |

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

The Sixth Annual Young Cryonicists Gathering

Teens & Twenties 6 2015: Getting to Know You - You Getting to Know Each Other - All While Being Updated On the Latest Scientific Research

Fri-Sun; April 24-26, '15 Las Vegas NV 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 aged 13-30 as of March 27, 2015 - may apply to attend. Cryonicists aged 12-17 must be accompanied by their parent(s) or guardian. In Vegas those under 21 must room with someone over 21.

Parents/guardians of attendees aged 18-19 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, all while being updated on the latest scientific research, then this is for you.

Enjoy this exciting & fulfilling weekend.

SCHOLARSHIPS:

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

- ◆ U.S. airfare to/from Las Vegas (or up to \$1000 for origin outside the U.S., \$1350 for Australia)
- ◆ Hotel accommodations for Friday and Saturday nights. Plus Thursday and Sunday for attendees who room together.
- ◆ Meals and beverages on Friday night, all day Saturday, & Sunday breakfast & lunch
- ◆ Registration fee - \$350 - also covered

Please click on this website for a full packet with details & application forms.

http://www.alcor.org/T2_6_2015_details.pdf

Forever,

Cairn Erfreuliche Idun
Founder/Director: T2

Bill Faloon: The Life Extension Foundation

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

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

We look forward to getting to know you.

At the Interface of Math and Science

In the modern world, mathematics plays an ever more important role in our daily lives and a decisive role in the discovery and development of new ideas—often behind the scenes. UC Santa Barbara's Paul Atzberger, a professor in the Department of Mathematics and in Mechanical Engineering, often works in areas where science and math intersect. Some of his recent research published in the Proceedings of the National Academy of Science (PNAS) and featured on the cover of the journal *Soft Matter* focuses on problems specific to lipid bilayer membranes. These microscopic structures can form a sheet that envelopes the outside of a biological cell in much the same way that human skin serves as the body's barrier to the outside environment. In the PNAS paper, Atzberger and his graduate student Jon Karl Sigurdsson worked in collaboration with the experimental laboratory of Patricia Bassereau and David Lacoste at the Institut Curie in Paris, to develop new mathematical approaches to gain insights into how proteins move around within lipid bilayer membranes.

Julie Cohen / The Current / UCSB
29 Sep. 2014

<http://www.news.ucsb.edu/2014/014415/interface-math-and-science>

Scientists Develop Barcoding Tool for Stem Cells

New technology that tracks the origin of blood cells challenges scientific dogma. A 7-year-project to develop a barcoding and tracking system for tissue stem cells has revealed previously unrecognized features of normal blood production: New data from Harvard Stem Cell Institute scientists at Boston Children's Hospital suggests, surprisingly, that the billions of blood cells that we produce each day are made not by blood stem cells, but rather their less

pluripotent descendants, called progenitor cells. Boston Children's Hospital scientist Fernando Camargo and his colleague Jianlong Sun addressed this problem with a tool that generates a unique barcode in the DNA of all blood stem cells and their progenitor cells in a mouse. The researchers hypothesize that blood comes from stable populations of different long-lived progenitor cells that are responsible for giving rise to specific blood cell types, while blood stem cells likely act as essential reserves. The work suggests that progenitor cells could potentially be just as valuable as blood stem cells for blood regeneration therapies.

Harvard University, Harvard Stem Cell Institute
5 Oct. 2014

<http://hsci.harvard.edu/news/scientists-develop-barcoding-tool-stem-cells>

Manipulating Memory with Light

Researchers at the UC Davis Center for Neuroscience and Department of Psychology have used light to erase specific memories in mice, and proved a basic theory of how different parts of the brain work together to retrieve episodic memories. The work was published Oct. 9 in the journal *Neuron*. Optogenetics, pioneered by Karl Diesseroth at Stanford University, is a new technique for manipulating and studying nerve cells using light. The techniques of optogenetics are rapidly becoming the standard method for investigating brain function. Kazumasa Tanaka, Brian Wiltgen and colleagues at UC Davis applied the technique to test a long-standing idea about memory retrieval. For about 40 years, Wiltgen said, neuroscientists have theorized that retrieving episodic memories—memories about specific places and events—involves coordinated activity between the cerebral cortex and the hippocampus, a small structure deep in the brain....

UC Davis News & Information
9 Oct. 2014

http://news.ucdavis.edu/search/news_detail.lasso?id=11053

Amputees Discern Familiar Sensations Across Prosthetic Hand

Blindfolded during an experiment, Igor Spetic feels his arm hairs rise when a researcher brushes the back of his prosthetic hand with a cotton ball. Spetic, who lost his right hand to an industrial accident 4 years ago, can't actually feel the ball. But patterns of electric signals are sent by a computer into nerves in his arm and to his brain, which tells him different. "I knew immediately it was cotton," he said. That's one of several types of sensation Spetic, of Madison, Ohio, can feel with the prosthetic system being developed by Case Western Reserve University and the Louis Stokes Cleveland Veterans Affairs Medical Center. Spetic was excited just to "feel" again, and quickly received an unexpected benefit. The phantom pain he'd suffered, which he's described as a vise crushing his closed fist, subsided almost completely. "The sense of touch is one of the ways we interact with objects around us," said Dustin Tyler, an associate professor of biomedical engineering at Case Western Reserve and director of the research. "Our goal is not just to restore function, but to build a reconnection to the world. ..."

ScienceDaily / Case Western Reserve University
8 Oct. 2014

<http://www.sciencedaily.com/releases/2014/10/141008153624.htm>

Mechanism that Repairs Brain after Stroke Discovered

A previously unknown mechanism through which the brain produces new nerve cells after a stroke has been discovered at Lund University and Karolinska Institutet in Sweden. The findings have been published in the journal *Science*. A stroke is caused by a blood clot blocking a blood vessel in the brain, which leads to an interruption of blood flow and therefore a shortage of oxygen. Many nerve cells die, resulting in motor, sensory and cognitive problems. The researchers have shown that following an induced stroke in mice, support cells, so-called astrocytes, start to form nerve cells in the injured part of the brain. Using genetic methods to map the fate of the cells, the scientists could demonstrate that astrocytes in this area formed immature nerve cells, which then developed into mature nerve cells. "This is the first time that astrocytes have been shown to have the capacity to

start a process that leads to the generation of new nerve cells after a stroke," says Zaal Kokaia, Professor of Experimental Medical Research at Lund University.

Lund University News and Press Releases
10 Oct. 2014

<http://www.lunduniversity.lu.se/article/mechanism-that-repairs-brain-after-stroke-discovered>

Smallest World Record Has 'Endless Possibilities' for Bio-Nanotechnology

Scientists from the University of Leeds have taken a crucial step forward in bio-nanotechnology, a field that uses biology to develop new tools for science, technology and medicine. The new study, published in the journal *Nano Letters*, demonstrates how stable "lipid membranes"—the thin "skin" that surrounds all biological cells—can be

applied to synthetic surfaces. Importantly, the new technique can use these lipid membranes to "draw"—akin to using them like a biological ink—with a resolution of 6 nanometres (6 billionths of a meter), which is much smaller than scientists had previously thought was possible. "This is smaller than the active elements of the most advanced silicon chips and promises the ability to position functional biological molecules—such as those involved in taste, smell, and other sensory roles—with high precision, to create novel hybrid bio-electronic devices," said Professor Steve Evans, from the School of Physics and Astronomy at the University of Leeds and a co-author of the paper. In the study, the researchers used Atomic Force Microscopy (AFM).

Leeds, UK (SPX)

10 Oct 2014

http://www.leeds.ac.uk/site/scripts/news_article.php?newsID=3602

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. OR it will require some entirely new approach such as (1) mapping the ultrastructure of cryopreserved brain tissue using nanotechnology, and (2) using this information to deduce the original structure and repairing, replicating or simulating tissue or structure in some viable form so the person "comes back."

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

Jerome B. White, "Viral-Induced Repair of Damaged Neurons with Preservation of Long-Term Information Content," Second Annual Conference of the Cryonics Societies of America, University of Michigan at Ann Arbor, April 11-12, 1969, by J. B. White.

Michael G. Darwin, "The Anabolocyte: A Biological Approach to Repairing Cryoinjury," *Life Extension*

Magazine (July-August 1977):80-83. Reprinted in *Cryonics* 29 (4th Quarter 2008):14-17.

Corey Noble, "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.

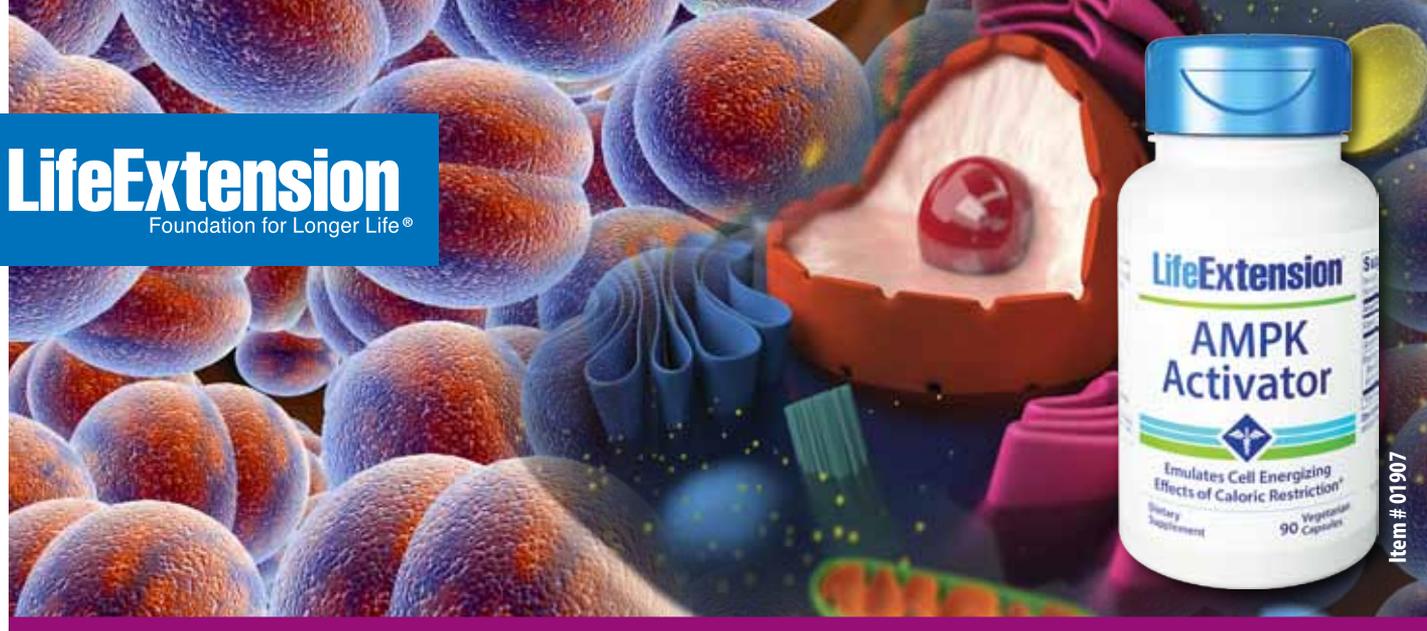
Ralph C. Merkle, "The Molecular Repair of the Brain," *Cryonics* 15(January 1994):16-31 (Part I) & *Cryonics* 15(April 1994):20-32 (Part II).

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 Phaedra, "Reconstructive Connectomics," *Cryonics Magazine*, July 2013.



Item # 01907

AMPK Activator

A New Paradigm in Controlling Aging

AMPK is an *enzyme* that serves as the body's "**master regulating switch**." It inhibits multiple degenerative factors by *revitalizing* aging cells.¹

Found in every cell,^{2,3} **AMPK** promotes *longevity factors* that have been shown to extend life span in numerous organisms.^{1,4} Increasing AMPK signaling "turns off" many destructive effects of aging, thus enabling cells to return to their youthful vitality.⁵

Life Extension® scientists have compiled years of research to create **AMPK Activator**, a specialized *dual-extract formulation* that supports AMPK activation for health optimization. This natural formula supports AMPK enzymatic activities required to safely support a more youthful cellular environment.

Importance of AMPK

Greater **AMPK** (*adenosine monophosphate-activated protein kinase*) activation has been shown to help target damaging factors of aging.⁵ Studies show **increased** AMPK activity supports reduced fat storage,⁶ new mitochondria production,⁷ and the promotion of healthy blood glucose and lipids already within normal range.⁴

Gynostemma Pentaphyllum

An extract of the plant *Gynostemma pentaphyllum* was traditionally used in Asian medicine to promote longevity and scientists now know why — *G. pentaphyllum* promotes **AMPK** activation!⁸⁻¹⁰ In one of many studies showing a wide variety of benefits, researchers documented a one-inch reduction in **abdominal circumference** in overweight individuals who took **450 mg** daily of *G. pentaphyllum* extract for 12 weeks.¹¹

Trans-Tilioside

Trans-tilioside, extracted from plants such as **rose hips**, also boosts **AMPK** activation, but triggers different downstream metabolic benefits

References

1. *J Mol Med (Berl)*. 2011 Jul;89(7):667-76.
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13. *Prev Nutr Food Sci*. 2013 Jun;18(2):85-91.
14. *J Nutr Biochem*. 2012 Jul;23(7):768-76.
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than *G. pentaphyllum*.¹²⁻¹⁴ Among its many benefits, a low equivalent dose of **56 mg** daily *trans*-tilioside has been shown by researchers in preclinical studies to promote healthy blood glucose levels and body weight already within normal range.¹⁵

The suggested daily dosage of **AMPK Activator** is to take two capsules with the first meal of the day and one capsule with the second meal. Three capsules provide:

| | |
|---|-----------------|
| Gynostemma pentaphyllum extract | 450 mg |
| Rose hip extract | 1,120 mg |
| Standardized to <i>trans</i> -tilioside | 56 mg |

Anti-Aging Discovery That Cannot Be Overlooked

Scientists uncovered the cell-energizing effect of **AMPK** in the 1970s. Since then, an exponential volume of data (over 7,500 published studies) documents the critical role that **activated AMPK** plays in maintaining life-sustaining cellular functions.

Those seeking to meaningfully extend their healthy life span should ensure they optimally **activate** their cellular **AMPK**. The reason this is so important is that in response to aging, excess calorie consumption, and/or low levels of physical activity, AMPK activity markedly **declines**.

A targeted way of **reversing** cellular depletion of this critical enzyme is to take the **new AMPK Activator** formula that comprises a dual-extract, plant-based formulation.

A bottle of 90 vegetarian capsules of the **new AMPK Activator** retails for \$48. If a member buys four bottles during **Super Sale**, the price is reduced to **\$29.70** per bottle.

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Be sure to use Discount Code PIM401X to get these savings.

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 for more information.

PHOENIX

VALLEY OF THE SUN:

This group meets monthly, usually in the third week of the month. Dates are determined by the activity or event planned. For more information or to RSVP, visit <http://cryonics.meetup.com/45/> or email Lisa Shock at lisa@alcor.org.

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.

CALIFORNIA

LOS ANGELES:

Alcor Southern California Meetings—For information, call Peter Voss at (310) 822-4533 or e-mail him at 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 (650) 969-1671, (650) 534-6409 or email 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 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, 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.

OREGON:

The contact person for meetings in the Portland area is Aschwin de Wolf: 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. The Alcor Portugal website is: 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.

UNITED KINGDOM

There is an Alcor chapter in England. For information about meetings, contact Alan Sinclair at cryoservices@yahoo.co.uk. See the web site at 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?

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?

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). 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?

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 • www.alcor.org

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