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ISSUE 02 | 2022

CRYONICS INSTITUTE NEWSLETTER

Cryonics insights and information for members and friends of the Cryonics Institute

cryonics.org · info@cryonics.org · 1 (866) 288-2796

CI PRESIDENT'S REPORT

Hello all,

It's that time of year again for the Cryonics Institute's Annual General Meeting as well as our annual election cycle for Board of Director's positions. Significantly, this election will include one open position, which usually is not the case as the current Board Members nearly always successfully run for re-election. Of course, any incumbent can lose their position to a challenger during an election, but In this instance, Alan Mole's untimely passing has left CI with a vacant spot without an incumbent challenger. So this is one of the more unusual election scenarios where we are guaranteed to see at least one brand new person joining the Board of Directors.

For those of you attending the AGM in person, I encourage everyone to attend the traditional night before dinner which is always a good time catching up with old friends and especially meeting new people. I also recommend signing up for the facility tour, even if you've taken one before. As we have detailed in past issues, the new facility is really shaping up and I have to say, the photos we've shown don't really do the scope of the renovations justice. So this is a prime opportunity to see what the future of CI looks like firsthand.

Speaking of the facility, we have another update in this issue which shows how cryostats are prepared and installed at CI. It is a big job, especially the work needed to maximize each cryostat's cooling efficiency to ensure the least liquid nitrogen evaporation, or "burn off" possible. Since liquid nitrogen is one of CI's major ongoing maintenance expenses, we want to make sure we are getting the most "bang for the buck" every time we top off a tank. A poorly insulated cryostat could add up to thousands of dollars in liquid nitrogen burn off every year. With that thought in mind, I'm proud to say our cryostats are arguably the most effective and efficient models in service anywhere today.

The impact on our bottom line operations due to the quality and effectiveness of our cryostats is significant, so a special thanks to Facility Manager Andy Zawacki for his skill and expertise in preparing and rigorously testing each unit before it is put into service.

Back to the AGM, this year's AGM will be held Sunday, September 11, 2022. For those of you who can't make the trip, please sign up for the live webinar. For all the details, please see page 7. I'm looking forward to seeing you there!

In other news, I was pleased to participate in Alcor's first-ever "President's Panel" at their recent 50th Anniversary meeting, where I shared the stage with presidents from the leading cryonics organizations including Peter Tsolakides - Southern Cryonics (Australia,) Emil Kendziorra - Tomorrow Biostasis (Europe) and Max More - Alcor Life Extension (US.)

It was a great experience, and you may be surprised to hear, actually my very first visit to the Alcor Facility, so it was very informative to finally see their operations in person.

Alcor staff and members were very friendly and I spoke to a lot of people about Cryonics, CI and where we're all heading in the future - both the short term day-to-day operations future and the more optimisitc long-term revival future we're all hoping for.

That said, I think the best takeway from the experience was the reinforced sense of mutual cooperation among organizatins that I mentioned in previous reports. Having the leadership of all the major cryonics organizations together in one place where we can discuss ways to work together is a major step forward for the entire movement. I wasn't alone in

my enthusiasm either, as everyone involved agreed cryonics leadership should collaborate on a more regular basis. Whether that is through more in-person gatherings, an email group or most likely regular Zoom meetings remains open for discussion, but I believe this is a great idea that can benefit all of our organizations and members.

In particular, I'm excited about the possibiity of more active cordination of standby resources. Even with all cryonics organizations' memberships combined, we are still a very small group of members and facilities literally serving the entire planet. In my mind, this makes coordinating everyone's available standby resources to help all cryonicists a top priority, especially since standby is arguably the most critical point of a cryopreservation. Many of the standby and member group resources in our Groups List in every magazine involve members from both Alcor and CI. Chuck Bartl's Minnesota Rapid Response group is a prime example of this kind if cooperation, and it makes sense to explore similar joint efforts on both a regional and global level.

To close, I'd like to share this story that's been generating some buzz in the cryonics community.
https://www.nature.com/articles/d41586-022-02112-0
Pig hearts revived after death are causing many scientists to rethink what it actually means to be dead. In cryonics we have always maintained that death was in fact a process that could be slowed or reversed and not an event that is final by definition. This kind of scientific progress further vindicates our mission and shows that we are at the very least on the right path with our hypothesis. Let's hope we see more progress with similar research in the near future.

Dennis Kowalski - CI President

Alcor Facility


50th Anniversary Conference


Alcor's Patient Bay

CI President Dennis Kowalski, Alcor Medical Response Director Blake Honiotes and Alcor Director of Membership Diane Cremeens

CRYONICS INSTITUTE MAGAZINE
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ARTICLE SUBMISSIONS
Cryonics Institute or cryonics-related articles are welcome. Submissions: **dg@cryonics.org**

E-SUBSCRIPTIONS
* As a CI member, you are automatically added to our email reminder list. To unsubscribe, please use the "unsubscribe" link at the bottom of your email.

Cover Art

This issue's cover art comes courtesy of CI Director Nicholas Van Der Muelen. He created this stunning futuristic cryonics image for us using Midjourney, an advanced AI generator. We'll be seeing more of these images and get further insights into the creative process and how the artist interprets what the AI has created. More of Van Der Muelen's art can be seen here:

https://www.instagram.com/nicholas_r._van_der_meulen/

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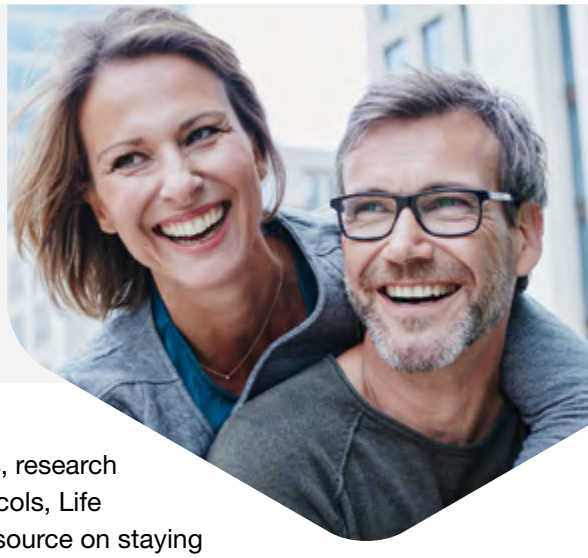

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Membership Benefits

Why join the Cryonics Institute?

The choice is clear: Irreversible physical death, dissolution and decay, or the possibility of a vibrant and joyful renewed life. Don't you want that chance for yourself, your spouse, parents and children?

1) A Second Chance at Life

Membership qualifies you to arrange and fund a vitrification (anti-crystallization) perfusion and cooling upon legal death, followed by long-term storage in liquid nitrogen. Instead of certain death, you and your loved ones could have a chance at rejuvenated, healthy physical revival through cryopreservation.

2) Affordable Cryopreservation

The Cryonics Institute (CI) offers full-body cryopreservation for as little as $28,000.

3) Affordable Membership

Become a Lifetime Member for a one-time payment of only $1,250, with no dues to pay. Or join as a Yearly Member with a $75 inititation fee and dues of just $120 per year, payable by check, credit card or PayPal.

4) Lower Prices for Spouses and Children

The cost of a Lifetime Membership for a spouse of a Lifetime Member is half-price and minor children of a Lifetime Member receive membership free of charge.

5) Quality of Treatment

CI employed a Ph.D level cryobiologist to develop CI-VM-1, CI's vitrification mixture which can help prevent crystalline formation at cryogenic temperatures.

6) Standby Options and Assistance

CI's use of Locally-Trained Funeral Directors means that our members can get knowledgeable, licensed care. Or members can arrange for professional cryonics standby and transport by subcontracting with **Suspended Animation, Inc** or **International Cryomedicine Experts** (I.C.E.) Ci also offers Standby Training Materials and Kits for members who choose to perform Local Standby.

7) Affordable Funding Options

Cryopreservation with CI can be funded through life insurance policies issued in the USA or other countries. Prepayment and other options for funding are also available to CI members.

8) Cutting-Edge Cryonics Information

Members receive a free e-subscription to the Cryonics Institute Newsletter, as well as access to our Facebook page, Twitter feed, YouTube channel and an official members-only forum.

9) Helpful, Professional Support

CI's professional staff is available to answer any questions and address any concerns you may have about CI, your membership or Cryopreservation.

10) Additional Preservation Services

CI offers a sampling kit, shipping and long-term liquid nitrogen storage of tissues and DNA from members, their families or pets for just $98.

11) Support Education and Research

Membership fees help CI to fund important cryonics research and public outreach, education and information programs to advance the science of cryonics.

12) Member Ownership and Control

CI Members are the ultimate authority in the organization and own all CI assets. They elect the Board of Directors, from whom are chosen our officers. CI members also can change the Bylaws of the organization (except for corporate purposes).

CRYONICS INSTITUTE
Technology for Life

To get started, contact us at:

(586) 791-5961 • email: info@cryonics.org

Visit us online at www.cryonics.org

CI NEWS

What's happening at the Cryonics Institute

2022 Cryonics Institute Annual General Meeting

SUNDAY - SEPT 11, 2022

AGM Location: Infinity Hall & Sidebar

16650 E 14 Mile Road
Fraser, MI 48026
phone: 586-879-6157
website: infinityhallsidebar.com

2022 AGM Details

Sunday, September 11, 2022
Event start time: 3:00 pm
Event end time: 6:30 pm

Facility Tours

Tours of the Main and new Ancillary Facilities will be conducted from 1:00 p.m. to 2:30 p.m. at 24355 Sorrentino Court, Clinton Township, MI.

* Doors open at approximately 12:30 pm. Note the facility is not open to guests prior to this time, so please do not arrive early to visit with staff as we will be preparing for the tours and the meeting.

Night Before Dinner

For those who come a day early, an informal dinner will be held at 6 pm on Saturday evening at The Infinity Hall and Sidebar (address above.)

ZOOM Virtual Meeting

CI will be live-streaming the meeting on Zoom.
REGISTER HERE

CI NEWS

What's happening at the Cryonics Institute

Welcome Branson Peacock

New to the Cryonics Institute in April of 2022, Branson has worked in the deathcare industry since 2000, attended the American Academy McAllister Institute of Funeral Service in 2008, earned the esteemed Certified Funeral Service Practitioner designation. He also attended Macomb Community College earning a degree in Law Enforcement.

Branson was also a Deputy County Coroner in Montana and is the proud father of his three children Addison, Grayson and Jameson.

New Cryostat Installation

Unfinished Cryostats arrive at the facility, ready to be moved, prepared and installed..

Tanks are unloaded from the truck. Supports are added so they can be moved with our forklift and they are brought into the facility and set on their sides in the prep bay. Inside the prep bay, insulation is added and the bottoms are reinforced. Then a filter and pump down valve are added to pull a vacuum.

In the photo below right, you can see the prep bay which has tarps hanging around the cryostat with an exhaust fan in the back. This is to keep the dust from the insulation and fiberglass down while they are being worked on. In this photo, the insulation has been loaded, the bottoms have been reinforced, the pump down valves and filters are in place, and there is a vacuum pump connected to them to start pulling a vacuum.

This process takes approximately a week.

Next, a boom truck comes back to stand them up for the next stage.

Once they are hoisted into their final vertical position, they are brought back into the facility for the final prep work.

They are coated with five applications of fire retardant material, applied by hand with a brush and roller. After that, they receive several coats of paint. This entire process also takes about one week to complete.

A vacuum is then pulled on each tank for seven days. They are then filled with liquid nitrogen for testing, which takes about two weeks to complete.

The final stage is to add the tank tops, which are made in advance by Operations Specialist Mike McCauley.

After adding the tops, the cryostats are moved into position in the facility and are ready to receive patients.

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Member Readiness Checklist

You've signed up for cryonics - what are the next steps?

Welcome Aboard! You have taken the first critical step in preparing for the future and possibly ensuring your own survival. Now what should you do? People often ask "What can I do to make sure I have an optimal suspension?" Here's a checklist of important steps to consider.

- ☐ Become a fully funded member through **life insurance** or easy pre-payments

  Some members use term life and invest or pay off the difference at regular intervals. Some use whole life or just prepay the costs outright. You have to decide what is best for you, but it is best to act sooner rather then later as insurance prices tend to rise as you get older and some people become uninsurable because of unforeseen health issues. You may even consider making CI the owner of your life insurance policy.

- ☐ Keep CI informed on a regular basis about your health status or address changes. Make sure your CI paperwork and funding are always up to date. CI cannot help you if we do not know you need help.

- ☐ Keep your family and friends up to date on your wishes to be cryopreserved. Being reclusive about cryonics can be costly and cause catastrophic results.

- ☐ Keep your doctor, lawyer, and funeral director up to date on your wishes to be cryopreserved. The right approach to the right professionals can be an asset.

- ☐ Prepare and execute a Living Will and Power of Attorney for Health Care that reflects your cryonics-related wishes. Make sure that CI is updated at regular intervals as well.

- ☐ Review the **CI Standby Manual** and other materials designed to help you with you Standby Planning. Also, consider joining or forming a local standby group to support your cryonics wishes. This may be one of the most important decisions you can make after you are fully funded. As they say-"Failing to plan is planning to fail".

- ☐ Always wear your cryonics bracelet or necklace identifying your wishes should you become incapacitated. Keep a wallet card as well. If you aren't around people who support your wishes and you can't speak for yourself a medical bracelet can help save you.

- ☐ Get involved! If you can, donate time and money. Cryonics is not a turnkey operation. Pay attention and look for further tips and advice to make both your personal arrangements and cryonics as a whole a success. The stronger our organization is, the stronger your chances of success.

- ☐ Keep your records, contact information and contracts up to date. It is recommended you review your relevant information annually at a minimum. One way is to schedule time to review all your materials at the same time you submit your required Annual Proof of Funding to CI. Also, Be especially aware of easy to forget things like a new email, phone number or address. Remember, you can also contact us at any time to ask if you have any outstanding paperwork or other info that needs to be updated.

  The online **CI Members' Information Form** is a great resource for updating your current information on file.

CI NEWS

What's happening at the Cryonics Institute

2022 Board of Directors Election

The twelve Directors of the Cryonics Institute Board are elected from our qualifying membership for three years in groups of four every September at the Annual General Meeting held in Clinton Township, Michigan. Any paid up member with a funded cryopreservation contract in force is eligible to run for the Board of Directors.

Officers are elected from among the Directors by the Board.

2022 | CANDIDATES

JIM BROUGHTON

Jim is a native of Minneapolis, MN and is a fully funded lifetime member of the Cryonics Institute with a longstanding, active interest in longevity and life extension. He has over 30 years of senior management experience in the medical device and pharmaceutical industries. He served in Regulatory & Quality senior management at Medtronic, Inc. for 17 years. He has in-depth experience with business startup activities for medical device and pharmaceutical products worldwide. He has led and directed operations from pilot production to full scale manufacturing for medical device and pharmaceutical products in the U.S., European Union, and Asia. Jim's educational background includes a Master's Degree in electrical engineering, a Bachelor of Science degree in physics, and a Bachelor of Arts degree in economics/mathematics.

He first became wholeheartedly interested in cryonics after reading Robert Ettinger's Prospect of Immortality while at the University of Minnesota in the1970s. Jim is currently an effective and dedicated member of Minnesota Cryonics Rapid Response (MCRR), a local standby, stabilization, and transport nonprofit in Minneapolis. Jim is serving on the MCRR medical committee, helping to procure needed equipment, assisting in the field-testing of a working, wearable cryonics alert system, and providing general consulting for common-sense approaches to local cryonics support in all areas. Jim has the time, dedication, and experience to make significant contributions to the ongoing success of the Cryonics Institute.

CI NEWS

What's happening at the Cryonics Institute

KEVIN DOYLE

Kevin Doyle holds a BSc in Mechanical Engineering from Queens University and a M.E.Sc from the University of Western Ontario. He also holds a Ph.D. in Operations Research from the University of Toronto.

Kevin has worked in Nuclear Power Generation for many years and also has experience with optimization projects in the health care and equipment maintenance fields as well as the area of organizational behavior. In addition, he has run a large-scale beef farm all his life, providing hands-on experience of ground-level work and organization.

He presently operates his own consulting organization.

DEBBIE FLEMING

I am an IT and business management professional overseeing the administrative and technical needs of an independent mortgage lender. It is my greatest desire for CI to continue to thrive and to utilize my passion for Cryonics with a business and technological aptitude to assist in safeguarding its patients, while sharing the benefits of Cryopreservation with the general populace.

My Dad, John Bull, one of the pioneers of the Cryonics movement from the 1960s, became a CI patient in January 2014. Cryonics has long been a household word and a passion he and I share. It's natural for me to be involved as a Director on CIs Board; an honor I've held since 2010. As a Director I assisted in forming CIs Memorial Room where family members may gather to visit and honor their loved ones. As a member I nurture the acceptance, wherever and whenever possible, that Cryonics offers the possibility to live with our loved ones again.

It has been my privilege to serve four terms as a Director of the Cryonics Institute and it shall remain my pleasure to so serve CIs patients, its members, and the lay-public who are future members. Please vote to keep me on the Cryonics Institute's Board of Directors so I may continue to serve the members and public in my dedication to the science of Cryonics and the lifelong passion I continue to share with my father.

CI NEWS

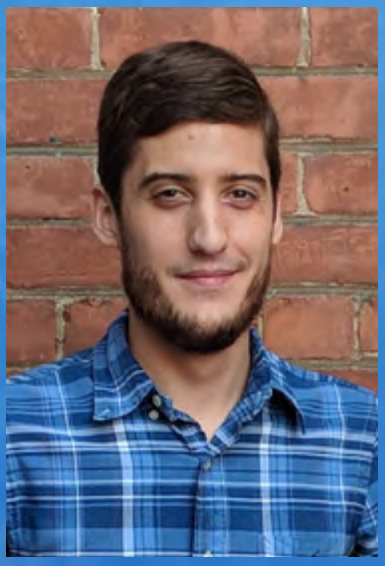
What's happening at the Cryonics Institute

VIVIEN GRUSS

My name is Vivien, I'm a young French man passionate about life, science & new technologies. I want to make my contribution by being candidate in the next CI election. I would like more cooperation between the various organisations. I worked in the banking sector and I like to get involved in projects that are close to my heart. I am a sincer & discreet person at the same time.

As I am french I can speak to and inform french and broader european communities that are interested in being cryopreserved.

That is why I want to propose myself as a candidate.



NICOLAS LACOMBE

I care a lot about the long term future, notably about existential risks. I am also a member of the Long Now Foundation.

I have worked in the software development industry for 9 years in various roles such as developer, team lead and software architect. I would like to offer my expertise and skills to help CI improve computer security and user experience.

I would also like to help CI in any other way I can, which might include things like improving its processes, assessing the quality of CI's protocols (ex.: using electron microscopy), helping with membership growth, improving standby/stabilisation/transport services, and improving CI's long term sustainability.

CI NEWS

What's happening at the Cryonics Institute

NICHOLAS VAN DER MUELEN

Nicholas Van Der Meulen, born in 1994, has been a funded member of the Cryonics Institute and contracted with Suspended Animation since 2014. In the year of 2017, Nicholas acquired an Associate in Arts degree of Biotechnology and married his wife Nicole Rodriguez who is also a funded member of CI. As an experienced photographer, cinematographer, and graphic designer, Nicholas is working to continue enhancing the image of CI and achieve the vision of its membership. Ultimately, Nicholas aims to significantly influence the developing science and technology of cryonic preservation to ensure the patients are revived in the future.

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www.cryonics.org Technology for Life

CI NEWS

What's happening at the Cryonics Institute

Pet Cryosuspension Services Available

Did you know CI Members can take advantage of our cryonic suspension services for their pets? Instead of burial or cremation, you can give a loyal and beloved pet the same second chance at life that we have through cryopreservation.

Many members who have preserved their pets say it's a comforting thought that their longtime animal companions now have the same chance to live again in a better future. Ci currently has nearly 200 pets in cryosuspension.

Cryopreservation of pets is only available to Lifetime and Yearly Members of the Cryonics Institute. Excluding the cost of Membership, the typical cost of cryopreserving a cat or dog is $5,800 up to 15 pounds in weight plus $150 per pound for every pound above 15 for dogs. This does not include shipping and veterinarian expenses. CI will also preserve other types of pets and pricing is similarly by the size and weight scale for dogs. Please contact us to inquire about specific pricing and procedures for pet patients, or visit https://www.cryonics.org/resources/pet-cryopreservation for more complete details.

Image by hoàng hon nguyen from Pixabay

CI NEWS

What's happening at the Cryonics Institute

Cryonics Meetup - AUGUST 28

Surrey, British Columbia - Canada

Lifespan Society President Carrie Radomski is inviting CI members in the BC area to participate in an informal cryonics meetup August 28 from 1pm to 6pm.

"Hello CI members,

I am the president of the Lifespan Society of BC and I would like to extend an invitation to CI members to attend a summer get-together. I have membership to both CI and Alcor. Lifespan Members are members of CI or Alcor, we help any cryonicist of any organization. We are a local group attempting to improve standby in the Greater Vancouver area to begin with, but we have some activity in Victoria as well. More info about us can be found on our new website www.lifespansociety.com

If you want to learn more about us in person you can attend this meet up. It is from 1pm to 6pm and it is at a private residence with a large outdoor area & pool (one of our lifespan members has graciously offered to host this event). Light refreshments & snacks will be provided. For covid safety, the event is held outdoors. Masks indoors will be encouraged.

Please email me at carrie@lifespanbc.ca if you would like to attend.

About the Lifespan Society of BC

The Lifespan Society of British Columbia is the first non-profit life-extension advocacy organization in Canada. We have been advocating for radical life extension since 2012. Lifespan members operate on a purely volunteer basis with a board that has collectively put years into making this possible.

Mission Statement

Lifespan's mission is to promote and protect access to science-based strategies for extending human lifespan. We advocate healthy living through education on optimal nutrition, integration of physical activities, and a broad range of existing and future treatments that encompass all aspects of longevity.

Carrie Radomski
President of The Lifespan Society of B.C.
carrie@lifespanbc.ca
www.lifespansociety.com

CI NEWS

What's happening at the Cryonics Institute

Visiting Hours For Family Members of CI Patients

Monday:	2:00pm - 4:00pm
Tuesday	2:00om - 4:00pm
Wednesday	2:00pm - 4:00pm
Thursday	2:00pm - 4:00pm

We ask that visitors kindly give us at least **one month advance notice** to ensure there are no scheduling conflicts. We cannot guarantee that the facility will be accessible to visitors who have not scheduled their visit in advance.

**** These visiting hours ar subject to change without notice due to patient or pet emergencies. ****

These requiirements have been established for multiple reasons, but most importantly for protecting our patients, members and facility.

Questions regarding visitation can be directed to Andy Zawacki, Facility Manager at info@cryonics.org or 1-586-791-5961.

Thank you!

Worldwide Cryonics Groups

AUSTRALIA: The Cryonics Association of Australasia offers support and information for Australia & nearby countries. **caalist@prix.pricom.com.au.** Their Public Relations Officer is Philip Rhoades. **phil@pricom.com.au** GPO Box 3411, Sydney, NSW 2001 Australia. Phone: +6128001 6204 (office) or +61 2 99226979 (home.)

BELGIUM: Cryonics Belgium is an organisation that exists to inform interested parties and, if desired, can assist with handling the paperwork for a cryonic suspension. The website can be found at **www.cryonicsbelgium.com**. To get in touch, please send an email to **info@cryonicsbelgium.com**.

BHUTAN: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Thimphou & Paro. Contacts : Jamyang Palden & Tenzin Rabgay / Emails : **palde002@umn.edu** or **jamgarnett@hotmail.co** Phones : Jamyang / 975-2-32-66-50 & Tenzin / 975-2-77-21-01-87

CANADA: This is a very active group that participated in Toronto's first cryopreservation. President, Christine Gaspar; Vice President, Gary Tripp. Visit them at: **http://www.cryocdn.org/**. There is a subgroup called the Toronto Local Group. Meeting dates and other conversations are held via the Yahoo group. This is a closed group. To join write: **csc5@cryocdn.org**

BRITISH COLUMBIA: The Lifespan Society advocates for radical life extension. They also organize conferences and educational outreach events on life extension issues. Lifespan welcomes all Canadians as members, although voting in the society is open to BC residents. Contact Carrie Radomski, President at **carrie@lifespanbc.ca**. Web site **www.lifespansociety.com**

QUEBEC: Contact: Stephan Beauregard, C.I. Director & Official Administrator of the Cryonics Institute Facebook Page. Information about Cryonics & perfusion services in Montreal for all cryonicicts. Services available in French & English: **stephan@cryonics.org**

CHILE: Community oriented to provide reliable information on human cryopreservation, as far as technical scientific as well as other practical aspects. Dissemination, awareness and education on issues related to the extension of life in general and cryonics in particular. Contact José Luis Galdames via **galdamesh.jl@gmail.com.**

FINLAND: The Finnish Cryonics Society, (KRYOFIN) was established in 2008 and is an organization collaborating with all nearby groups and organizations. Contact them at: **kryoniikka.fi** Their President is Ville Salmensuu **ville@salmensuu.fi**

FRANCE: SOCIETE CRYONICS DE FRANCE is a non profit French organization working closely with European cryonics groups. For more information: J.Roland Missionnier: phone: 33 (0) 6 64 90 98 41 or email: **cryonicsnews.inpi@gmail.com** • **Facebook group**

Francecryonics-Webnode Vivien Gruss, member of Cryonics Institute, has opened a web site for the information of persons interested in cryonic suspension.

GERMANY: DGAB There are a number of Cryonicists in Germany. Their Organization is called "Deutsche Gesellschaft für Angewandte Biostase e.V.", or short "DGAB". More information on their homepage at **www.biostase.de**. If there are further questions, contact their Board at **vorstand@biostase.de**

GERMANY: CRYONICS-GERMANY is an active group providing cryonics support, including a special 8-member

Standby Response Team. Members from Germany or Internationally are welcome to join. at **http://cryonics-germany.org**. Direct inquiries to **contact@cryonics-germany.org**.

INDIA: Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr and authority in Bangalore & Vellore Area. Contacts : Br Sankeerth & Bioster Vignesh / Email : **vicky23101994@gmail.com** Phones : Bioster / 918148049058 & Br Sankeerth / 917795115939

ITALY: The Italian Cryonics Group (inside the Life Extension Research Group (LIFEXT Research Group)) **www.lifext.org** and relative forum: **forum.lifext.org**. Contact Giovanni Ranzo at: **giovanni1410@gmail.com**

Kriorus Italy: Representative Filippo Polistena, email: filippopolistena45@gmail.com. phone: +39 334 298 9378

JAPAN: Hikaru Midorikawa is President Japan Cryonics Association. Formed in 1998, our goals are to disseminate cryonics information in Japan, to provide cryonics services in Japan, and eventually, to allow cryonics to take root in the Japanese society. Contact **mid_hikaru@yahoo.co.jp** or **http://www.cryonics.jp/**

NEPAL: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Kathmandu. Contact : Suresh K. Shrestha / Email : **toursuresh@gmail.com** Phone : 977-985-1071364 / PO Box 14480 Kathmandu.

THE NETHERLANDS: Dutch Cryonics Organization is the local support group since 2002 and able to provide advice, standby, perfusion and shipment 24/7, in case of need. We are an active group utilizing the latest equipment. New members from The Netherlands welcome.

E-mail: **info@cryonisme.nl**
website: **http://www.cryonisme.nl**

NORWAY : Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr, funeral home and authority at Sandvika. Contacts : Gunnar Hammersmark Sandvika Begegravelsesbyraa / Phones : 011-47-2279-7736

RUSSIA: KrioRus is a Russian cryonics organization operating in Russia, CIS and Eastern Europe that exists to help arrange cryopreservation and longterm suspension locally, or with CI or Alcor. Please contact **kriorus@gmail.com** for additional information or visit **http://www.kriorus.ru**. Phone: +7 962 947-50-79

SWEDEN: **www.kryonik.se** or Facebook: Svenska Kryonikföreningen. Initially, the society will focus on providing information and assistance to those who wish to sign up for cryonics. Eventually, we also hope to provide practical assistance in cases, possibly in collaboration with other European groups.

SWITZERLAND: **www.cryosuisse.ch**

CRYOSUISSE The Swiss Society for Cryonics is an active group with over 30 members. To join, **email info@cryosuisse.ch**

UNITED STATES:

Minnesota: Minnesota Cryonics Rapid Response (MCRR) is a nonprofit standby, stabilization and transport group based in Minneapolis, Minnesota. We have a strong, longstanding working relationship with local funeral directors, and have successfully participated in significantly more-timely suspension efforts in Minnesota in cooperation with both Alcor and the Cryonics Institute. Contact: President, Chuck Bartl, **chuckbartl@yahoo.com**.

UNITED KINGDOM: Cryonics UK is a nonprofit UK based standby group. **www.cryonics-uk.org** Cryonics UK can be contacted via the following people: Tim Gibson: phone: 07905 371495, email: **tim.gibson@cryonics-uk.org**. Victoria Stevens: phone: 01287 669201, email: **vicstevens@hotmail.co.uk**. Graham Hipkiss: phone: 0115 8492179 / 07752 251 564, email: **ghipkiss@hotmail.com**. Alan Sinclair: phone: 01273 587 660 / 07719 820715, email: **cryoservices@yahoo.co.uk**

Can help Cryonics Institute Members who need help, funeral home, transport at London. Contact : F.A. Albin & Sons / Arthur Stanley House Phone : 020-7237-3637

INTERNATIONAL: The Cryonics Society is a global cryonics advocacy organization. **www.CryonicsSociety.org**. They publish an e-newsletter *FutureNews*. Phone: 1-585-643-1167.

HELP US STAY UP-TO-DATE!

Please send any corrections or changes to the address below. If you know of, or are considering starting a support, standby or other cryonics-related group in your area, please send details to

dg@cryonics.org.

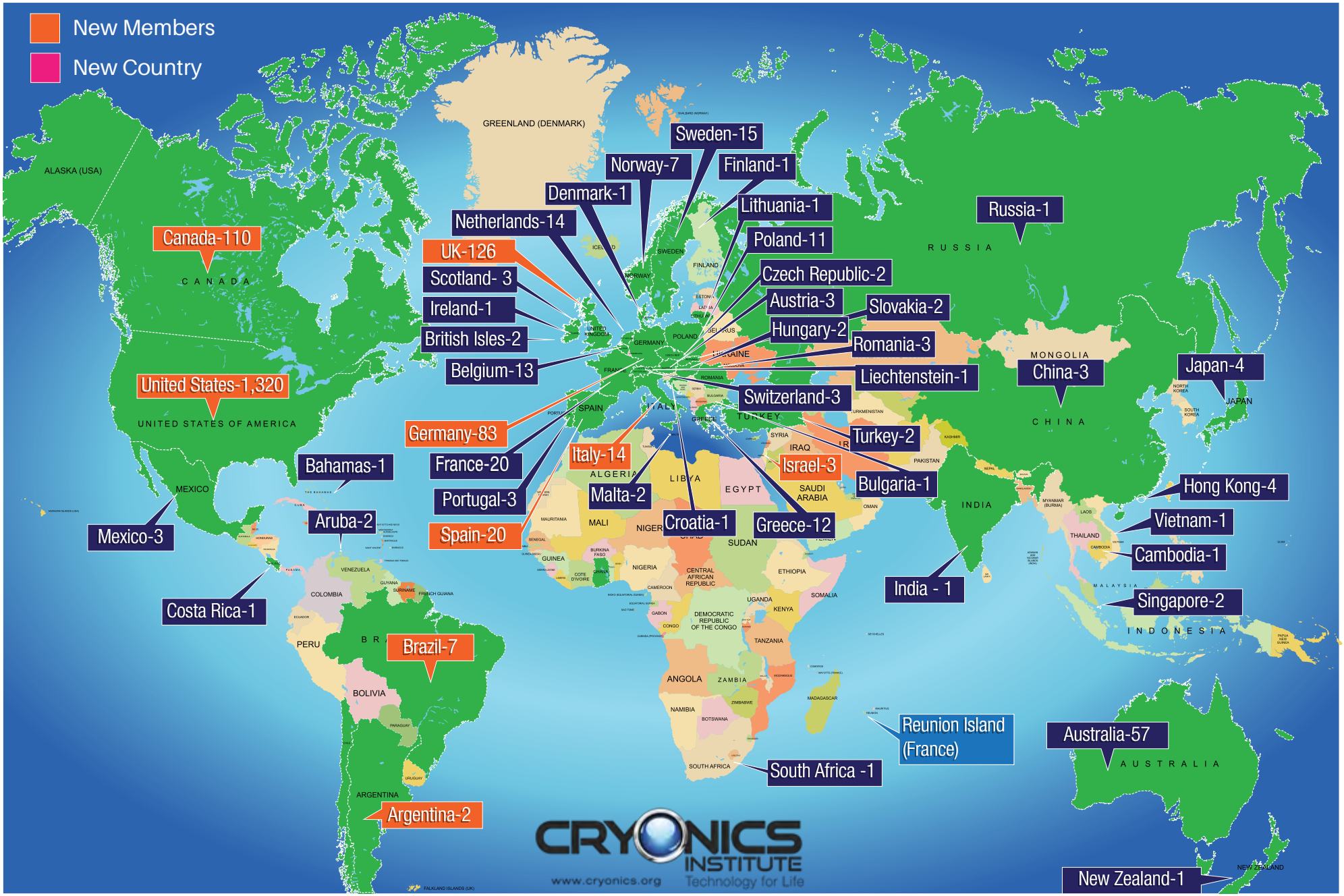
Please note, this list is provided as an information resource only. Inclusion on the list does not constitute an endorsement by the Cryonics Institute or our affiliated organizations. We urge our readers to use this list as a starting point to research groups that may meet their own individual needs. We further note that readers should always use their own informed judgment and a reasonable amount of caution in dealing with any organization and/or individual listed.

CI MEMBERSHIP

AUGUST 2022

Members	1,893	Pets	228
Patients	229	DNA/Tissue	340
		SA	309

TOTAL **2,122**



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YaleNews
from NEWS.YALE.EDU

Yale-developed technology restores cell, organ function in pigs after death

By Bill Hathawayaugust 3, 2022

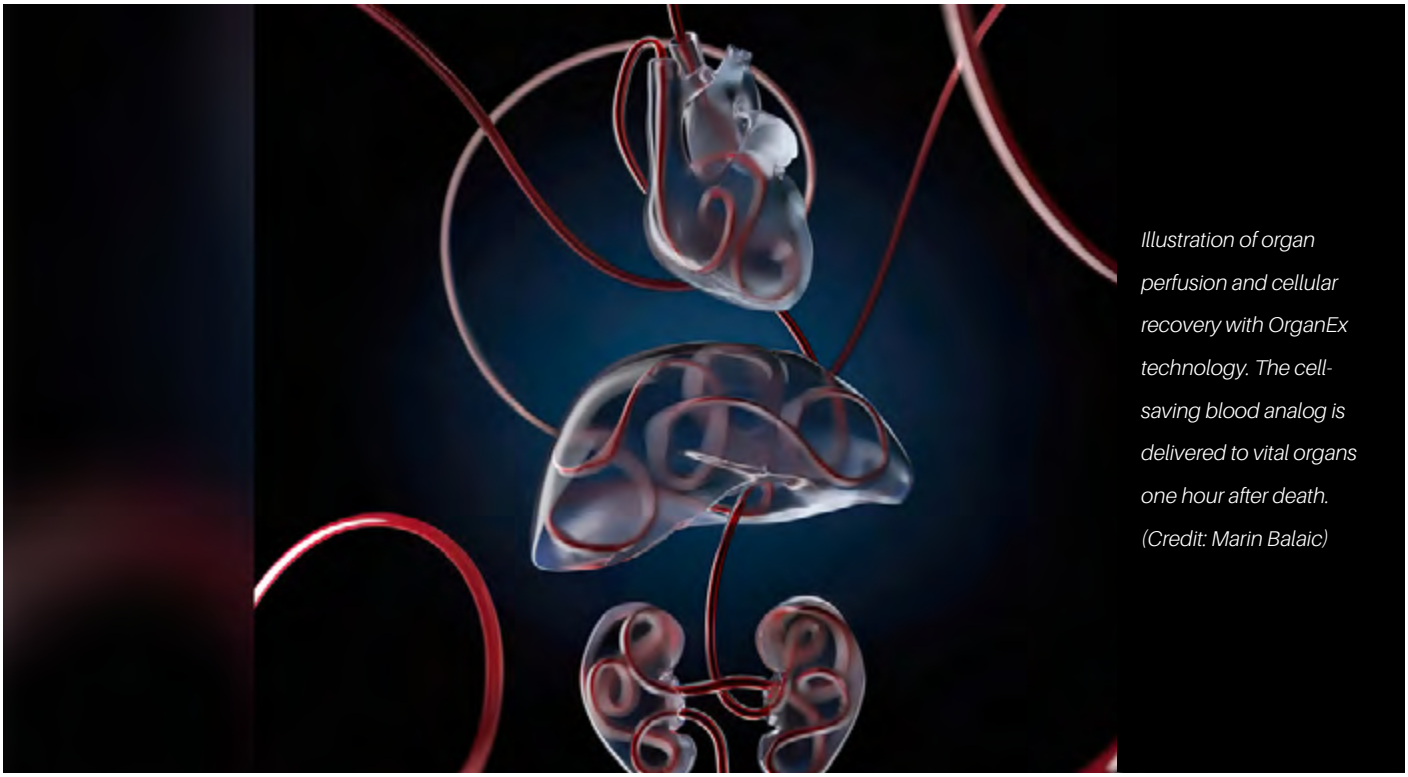


Illustration of organ perfusion and cellular recovery with OrganEx technology. The cell-saving blood analog is delivered to vital organs one hour after death. (Credit: Marin Balaic)

Within minutes of the final heartbeat, a cascade of biochemical events triggered by a lack of blood flow, oxygen, and nutrients begins to destroy a body's cells and organs. But a team of Yale scientists has found that massive and permanent cellular failure doesn't have to happen so quickly.

Using a new technology the team developed that delivers a specially designed cell-protective fluid to organs and tissues, the researchers restored blood circulation and other cellular functions in pigs a full hour after their deaths, they report in the Aug. 3 edition of the journal Nature.

The findings may help extend the health of human organs during surgery and expand availability of donor organs, the authors said.

"All cells do not die immediately, there is a more protracted series of events," said David Andrijevic, associate research scientist in neuroscience at Yale School of Medicine and co-lead author of the study. "It is a process in which you can intervene, stop, and restore some cellular function."

The research builds upon an earlier Yale-led project that restored circulation and certain cellular functions in the brain of a dead pig with technology dubbed BrainEx. Published in 2019, that study and the new one were led by the lab of Yale's Nenad Sestan, the Harvey and Kate Cushing Professor of Neuroscience and professor of comparative medicine, genetics, and psychiatry.

"If we were able to restore certain cellular functions in the

dead brain, an organ known to be most susceptible to ischemia [inadequate blood supply], we hypothesized that something similar could also be achieved in other vital transplantable organs," Sestan said.

In the new study — which involved senior author Sestan and colleagues Andrijevic, Zvonimir Vrselja, Taras Lysyy, and Shupei Zhang, all from Yale — the researchers applied a modified version of BrainEx called OrganEx to the whole pig. The technology consists of a perfusion device similar to heart-lung machines — which do the work of the heart and lungs during surgery — and an experimental fluid containing compounds that can promote cellular health and suppress inflammation throughout the pig's body. Cardiac arrest was induced in anesthetized pigs, which were treated with OrganEx an hour after death.

Six hours after treatment with OrganEx, the scientists found that certain key cellular functions were active in many areas of the pigs' bodies — including in the heart, liver, and kidneys — and that some organ function had been restored. For instance, they found evidence of electrical activity in the heart, which retained the ability to contract.

"We were also able to restore circulation throughout the body, which amazed us," Sestan said.

Normally when the heart stops beating, organs begin to swell, collapsing blood vessels and blocking circulation, he said. Yet circulation was restored and organs in the deceased pigs that received OrganEx treatment appeared functional at the level of cells and tissue.

"Under the microscope, it was difficult to tell the difference between a healthy organ and one which had been treated with OrganEx technology after death," Vrselja said.

As in the 2019 experiment, the researchers also found that cellular activity in some areas of the brain had been restored, though no organized electrical activity that would indicate consciousness was detected during any part of the experiment.

The team was especially surprised to observe involuntary and spontaneous muscular movements in the head and neck areas when they evaluated the treated animals, which remained anesthetized through the entire six-hour experiment. These movements indicate the preservation of some motor functions, Sestan said.

The researchers stressed that additional studies are necessary to understand the apparently restored motor functions in the animals, and that rigorous ethical review from other scientists and bioethicists is required.

The experimental protocols for the latest study were approved by Yale's Institutional Animal Care and Use Committee and guided by an external advisory and ethics committee.

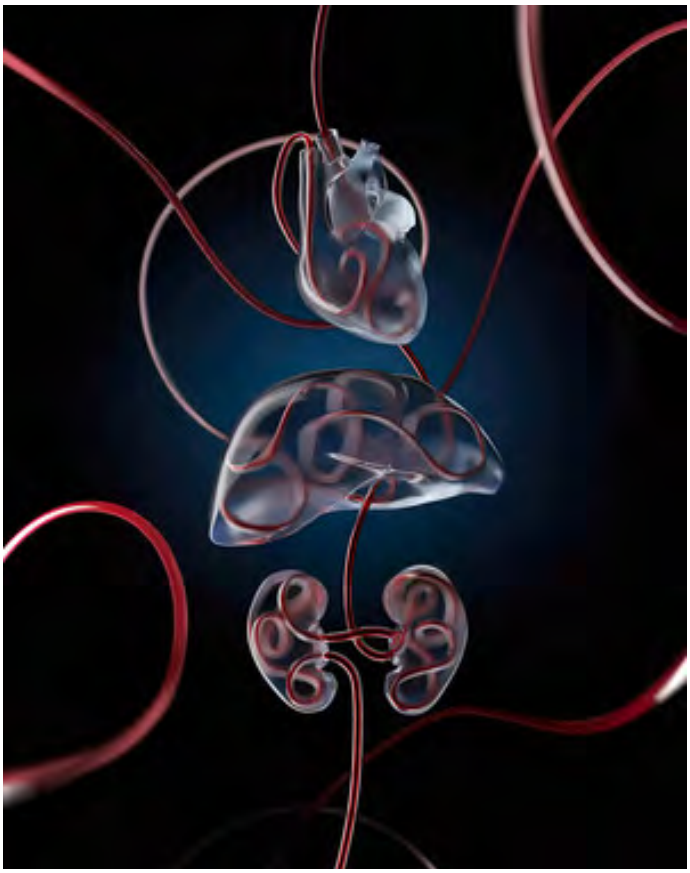
The OrganEx technology could eventually have several potential applications, the authors said. For instance, it could extend the life of organs in human patients and expand the availability of donor organs for transplant. It might also be able to help treat organs or tissue damaged by ischemia during heart attacks or strokes.

"There are numerous potential applications of this exciting new technology," said Stephen Latham, director of the Yale Interdisciplinary Center for Bioethics. "However, we need to maintain careful oversight of all future studies, particularly any that include perfusion of the brain."

The research was funded by the U.S. Department of Health & Human Services, National Institutes of Health, and National Institute of Mental Health.

This work was supported by the NIH BRAIN Initiative grants MH117064, MH117064-01S1, R21DK128662, T32GM136651, F30HD106694, and Schmidt Futures.

The study was conducted at the Yale Translational Research Imaging Center, which is directed by co-author Dr. Albert Sinusas, professor of medicine, radiology, and biomedical engineering. The Nature paper provides a full list of authors.

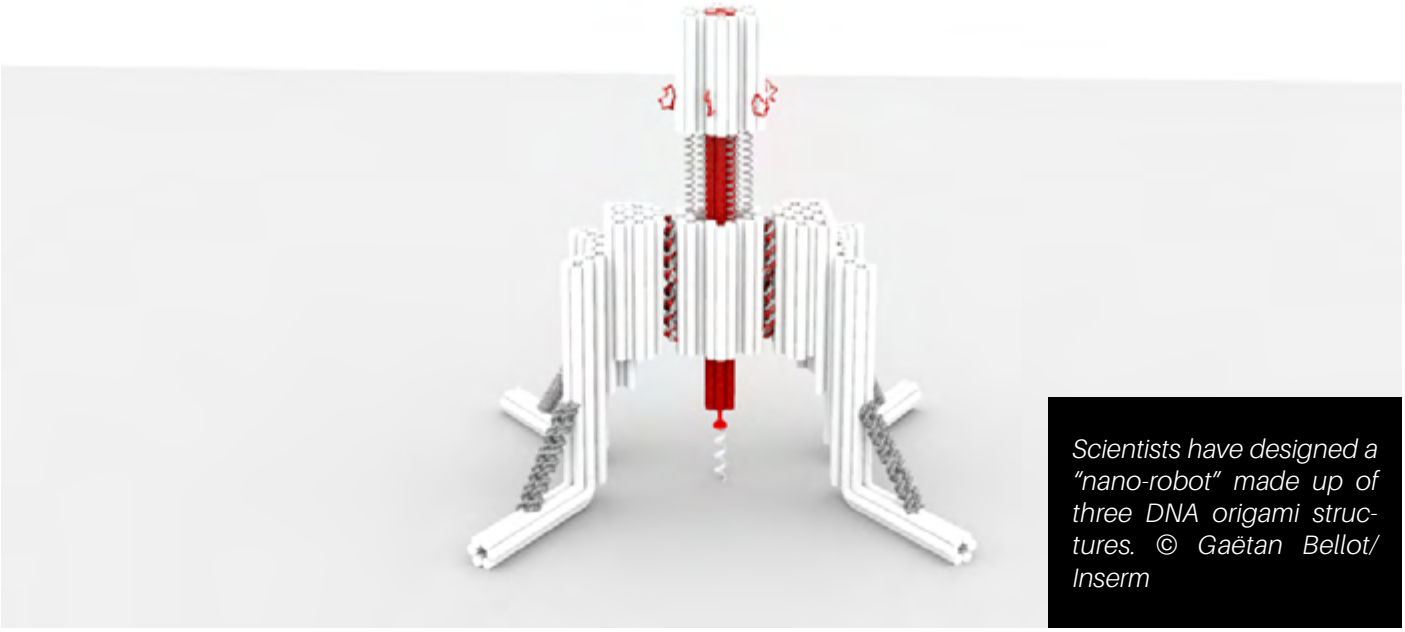


CRYONICS NEWS
Science, Technology and Medical News from the Web

Inserm pressroom
from PRESSE.INSERM.FR

A "Nano-Robot" Built Entirely from DNA to Explore Cell Processes

PRESS RELEASE | 28 JUL 2022 - 11H00 | BY INSERM PRESS OFFICE



Scientists have designed a "nano-robot" made up of three DNA origami structures. © Gaëtan Bellot/ Inserm

Constructing a tiny robot from DNA and using it to study cell processes invisible to the naked eye... You would be forgiven for thinking it is science fiction, but it is in fact the subject of serious research by scientists from Inserm, CNRS and Université de Montpellier at the Structural Biology Center in Montpellier[1]. This highly innovative "nano-robot" should enable closer study of the mechanical forces applied at microscopic levels, which are crucial for many biological and pathological processes. It is described in a new study published in Nature Communications.

Our cells are subject to mechanical forces exerted on a microscopic scale, triggering biological signals essential to many cell processes involved in the normal functioning of our body or in the development of diseases.

For example, the feeling of touch is partly conditional on the application of mechanical forces on specific cell receptors (the discovery of which was this year rewarded by the Nobel Prize in Physiology or Medicine).

In addition to touch, these receptors that are sensitive to mechanical forces (known as mechanoreceptors) enable the regulation of other key biological processes such as blood vessel constriction, pain perception, breathing or even the detection of sound waves in the ear, etc.

The dysfunction of this cellular mechanosensitivity is involved in many diseases – for example, cancer: cancer cells migrate within the body by sounding and constantly adapting to the mechanical properties of their microenvironment. Such adaptation is only possible because specific forces are detected by mechanoreceptors that transmit the information to the cell cytoskeleton.

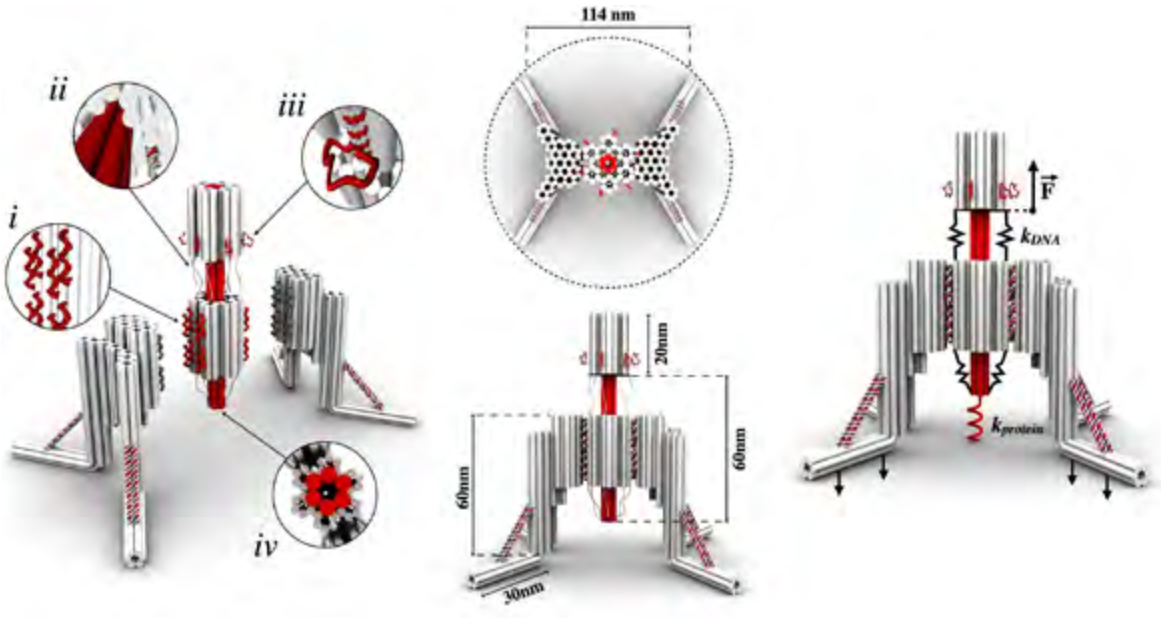
At present, our knowledge of these molecular mechanisms involved in cell mechanosensitivity is still very limited. Several technologies are already available to apply controlled

forces and study these mechanisms, but they have a number of limitations. In particular, they are very costly and do not allow us to study several cell receptors at a time, which makes their use very time-consuming if we want to collect a lot of data.

DNA origami structures

In order to propose an alternative, the research team led by Inserm researcher Gaëtan Bellot at the Structural Biology Center (Inserm/CNRS/Université de Montpellier) decided to use the DNA origami method. This enables the self-assembly of 3D nanostructures in a pre-defined form using the DNA molecule as construction material. Over the last ten years, the technique has allowed major advances in the field of nanotechnology.

This enabled the researchers to design a "nano-robot" composed of three DNA origami structures. Of nanometric size, it is therefore compatible with the size of a human cell. It makes it possible for the first time to apply and control a force with a resolution of 1 piconewton, namely one trillionth of a Newton – with 1 Newton corresponding to the force of a finger clicking on a pen. This is the first time that a human-made, self-assembled DNA-based object can apply force with this accuracy.



The team began by coupling the robot with a molecule that recognizes a mechanoreceptor. This made it possible to direct the robot to some of our cells and specifically apply forces to targeted mechanoreceptors localized on the surface of the cells in order to activate them.

Such a tool is very valuable for basic research, as it could be used to better understand the molecular mechanisms involved in cell mechanosensitivity and discover new cell receptors sensitive to mechanical forces. Thanks to the robot, the scientists will also be able to study more precisely at what moment, when applying force, key signaling pathways for many biological and pathological processes are activated at cell level.

"The design of a robot enabling the in vitro and in vivo application of piconewton forces meets a growing demand in the scientific community and represents a major technological advance. However, the biocompatibility of the robot can be considered both an advantage for in vivo applications but may also represent a weakness with sensitivity to enzymes that can degrade DNA. So our next step will be to study how we can modify the surface of the robot so that it is less sensitive to the action of enzymes. We will also try to find other modes of activation of our robot using, for example, a magnetic field," emphasizes Bellot.

[1] Also contributed to this research: the Institute of Functional Genomics (CNRS/Inserm/Université de Montpellier), the Max Mousseron Biomolecules Institute (CNRS/Université de Montpellier/ENSCM), the Paul Pascal Research Center (CNRS/Université de Bordeaux) and the Physiology and Experimental Medicine: Heart-Muscles laboratory (CNRS/Inserm/Université de Montpellier).

ScienceNews
INDEPENDENT JOURNALISM SINCE 1921

from SCIENCEDAILY.COM

Treating human livers with protective chemicals (red liquid) before storing them at subzero temperatures kept the organs viable for over a full day outside the body — about three times as long as a liver's normal preservation time on ice.

JEFFREY ANDREE, REINIER DE VRIES AND KORKUT UYGUN

Supercooling tripled the shelf life of donor livers

Chemicals that prevent the human tissue from freezing may help ease organ shortages

By Maria Temming - SEPTEMBER 9, 2019 AT 11:00 AM

A new technique to keep donor organs colder than ice cold could greatly extend the length of time that those organs are viable for transplant.

Typically, donor organs stay viable for several hours on ice at about 4° Celsius. Tissue can last even longer at lower temperatures — but below zero degrees Celsius, the formation of ice crystals risks damaging an organ and rendering it unusable. Now, using chemicals that prevent an organ from freezing at subzero temperatures, researchers have preserved five human livers at –4° C. That supercool storage system tripled the livers' typical shelf life from nine to 27 hours, researchers report online September 9 in Nature Biotechnology.

This kind of deep-chill technology "would be huge for transplantation," says Jedediah Lewis, president and CEO of the Organ Preservation Alliance in Berkeley, Calif., a nonprofit that supports research on organ and tissue preservation but was not involved in this research.

Every year, thousands of donor organs are discarded for various reasons, including the inability to find a suitable patient close enough to receive the organ before it goes bad.

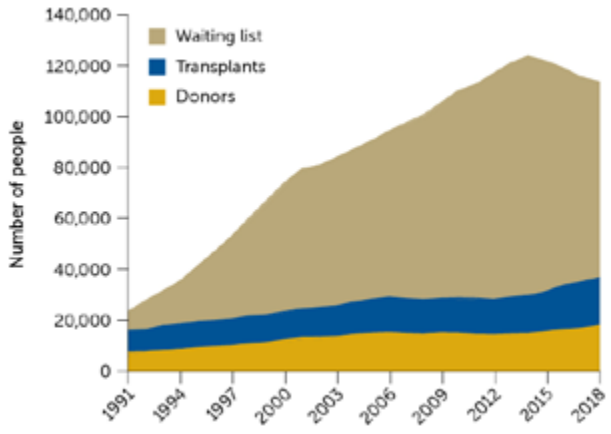
If donor tissue were viable longer, doctors could get organs to patients who might otherwise be too far away, Lewis says. That could lead to more lifesaving surgeries for patients waiting for a transplant — currently more than 100,000 in the United States alone. Pushing back organs' expiration dates could also curb the costs of private flights to rush organs between cities and allow for more flexible surgery scheduling, Lewis adds.

In the new study, researchers devised a cocktail of cryoprotectant chemicals, including trehalose and glycerol, to combat ice formation and protect cells at extremely low temperatures. To ensure each liver was completely saturated with preservatives, the researchers administered the chemicals using a machine perfusion system. That device is basically "an artificial body for the liver" that pumps fluids into an organ in a way that imitates blood flow, says Reinier de Vries, a medical doctor and mechanical engineer at Harvard Medical School and Massachusetts General Hospital in Boston.

Demand versus supply

Over the past few decades, the need for organs has skyrocketed while the number of available organs (yellow) has grown very slowly, allowing only a fraction of patients who need a transplant to get one (blue). Supercooling donor organs to extend their viability could increase the number of organs available to patients on the waiting list (brown).

U.S. organ donors, transplants and transplant waiting list, 1991–2018



C. CHANG

Source: Organdonor.gov

This supercooling preparation scheme is a more sophisticated version of a chemical injection previously shown to preserve rat livers for several days at –6° C (SN: 7/3/14). Additional cryoprotectant chemicals and the more elaborate machine perfusion equipment allowed the new setup to handle human livers, which are harder to supercool because they're about 200 times as big as their rat counterparts.

Once each human liver was loaded up with cryoprotectants, de Vries and colleagues sealed it in a bag to stash in a chiller at –4° C. After 20 hours in the icebox, the researchers hooked the liver up to a machine perfusion system that flushed out the chemicals that helped it withstand the cold and warmed the organ to room temperature. From start to finish, the supercool storage process took about 27 hours.

In experiments with five livers, "we got absolutely no ice formation for the duration of storage," says study coauthor Shannon Tessier, a biomedical engineer also at Harvard and Mass General. When the researchers checked the livers for tissue damage and compared how well the livers took up oxygen, produced bile and performed other functions before and after supercooling, the team found no major changes in the organs' health. Tessier and colleagues then warmed three of these organs to body temperature and infused them with red blood cells and plasma to simulate a transplant, and all remained viable.

To validate the supercool setup, the next step is to transplant organs stored at subzero temps into large animals like pigs, Tessier says. "We actually want to show that the animals survive transplantation," she says. "Then, hopefully we can think about clinical trials."

The new supercooling technique "is a really elegant piece of work," says Malcolm MacConmara, a transplant surgeon at the University of Texas Southwestern Medical Center in Dallas. He imagines that other organs, such as kidneys and hearts, may also benefit from this technology to curb organ shortages (SN: 3/12/19).

Postponing the best-by times for donor organs may be especially useful for organs that deteriorate even faster than the liver, says James Shapiro, a transplant surgeon at the University of Alberta in Edmonton, Canada. "In heart transplants, they like to keep their cold storage times very short- if they go beyond around four hours or so, then the heart surgeons start to get very nervous," he says. "If you had a system like this that would facilitate longer storage times, you could really open up the possibility of saving more lives."

Google's Sycamore quantum computer, cooled in a cryostat (shown), revealed in new experiments that certain types of machine learning problems get a massive leg up from quantum physics.

ERIC LUCERO/GOOGLE, INC.

Quantum physics exponentially improves some types of machine learning

Quantum techniques outperform classical when learning about quantum systems

By Emily Conover | JUNE 9, 2022 AT 2:00 PM

Machine learning can get a boost from quantum physics.

On certain types of machine learning tasks, quantum computers have an exponential advantage over standard computation, scientists report in the June 10 Science. The researchers proved that, according to quantum math, the advantage applies when using machine learning to understand quantum systems. And the team showed that the advantage holds up in real-world tests.

"People are very excited about the potential of using quantum technology to improve our learning ability," says theoretical physicist and computer scientist Hsin-Yuan Huang of Caltech. But it wasn't entirely clear if machine learning could benefit from quantum physics in practice.

In certain machine learning tasks, scientists attempt to glean information about a quantum system — say a molecule or a group of particles — by performing repeated experiments, and analyzing data from those experiments to learn about the system.

Huang and colleagues studied several such tasks. In one, scientists aim to discern properties of the quantum system, such as the position and momentum of particles within. Quantum data from multiple experiments could be input into a quantum computer's memory, and the computer would process the data jointly to learn the quantum system's characteristics.

The researchers proved theoretically that doing the same characterization with standard, or classical, techniques

would require exponentially more experiments in order to learn the same information. Unlike a classical computer, a quantum computer can exploit entanglement — ethereal quantum linkages — to better analyze the results of multiple experiments.

But the new work goes beyond just the theoretical. "It's crucial to understand if this is realistic, if this is something we could see in the lab or if this is just theoretical," says Dorit Aharonov of the Hebrew University of Jerusalem, who was not involved with the research.

So the researchers tested machine learning tasks with Google's quantum computer, Sycamore (SN: 10/23/19). Rather than measuring a real quantum system, the team used simulated quantum data, and analyzed it using either quantum or classical techniques.

Quantum machine learning won out there, too, even though Google's quantum computer is noisy, meaning errors can slip into calculations. Eventually, scientists plan to build quantum computers that can correct their own errors (SN: 6/22/20). But for now, even without that error correction, quantum machine learning prevailed.

This stick-on ultrasound patch could let you watch your own heart beat

The technology is a big step forward in personalized medicine

By Asa Stahl | JULY 28, 2022 AT 2:00 PM

When stuck to skin, a new ultrasound patch (pictured) can reveal blood flow and changes in the underlying tissue.

C. WANG ET AL/ SCIENCE 2022

Picture a smartwatch that doesn't just show your heart rate, but a real-time image of your heart as it beats in your chest. Researchers may have taken the first step down that road by creating a wearable ultrasound patch — think of a Band-Aid with sonar — that provides a flexible way to see deep inside the body.

Ultrasound, which maps tissues and fluids by recording how sound waves bounce off them, can help doctors examine organs for damage, diagnose cancer or even track bacteria (SN: 1/3/18). But most ultrasound machines aren't portable, and the wearable ones either struggle to spot details or can be used for only short periods.

The new patch can work for up to 48 hours straight — even while the user is doing something active, like exercising. And the miniature device sees just as well as a more unwieldy hospital machine, researchers report in the July 29 Science.

"This is just the beginning," says Xuanhe Zhao, a mechanical engineer at MIT. His team plans to make the patch wireless and able to interface with a user's phone, which could then show the ultrasound signals as 3-D images.

The medical possibilities range wide. Stick a patch over a person's heart, and the frequent images it takes could help predict heart attacks and blood clots potentially months before disaster hits, explains Aparna Singh, a biomedical engineer at Columbia University. Placed on a COVID-19 patient, the patch — which is only about the size of a quarter — could be an easy way to catch lung problems as they develop.

"This also has a huge potential to be available for developing countries," where limited access to hospitals can make monitoring patients difficult, Singh says. The patch costs about $100 to make. One of the researchers' next steps will be to try to make the device cheaper.

ScienceDaily

from SCIENCEDAILY.COM

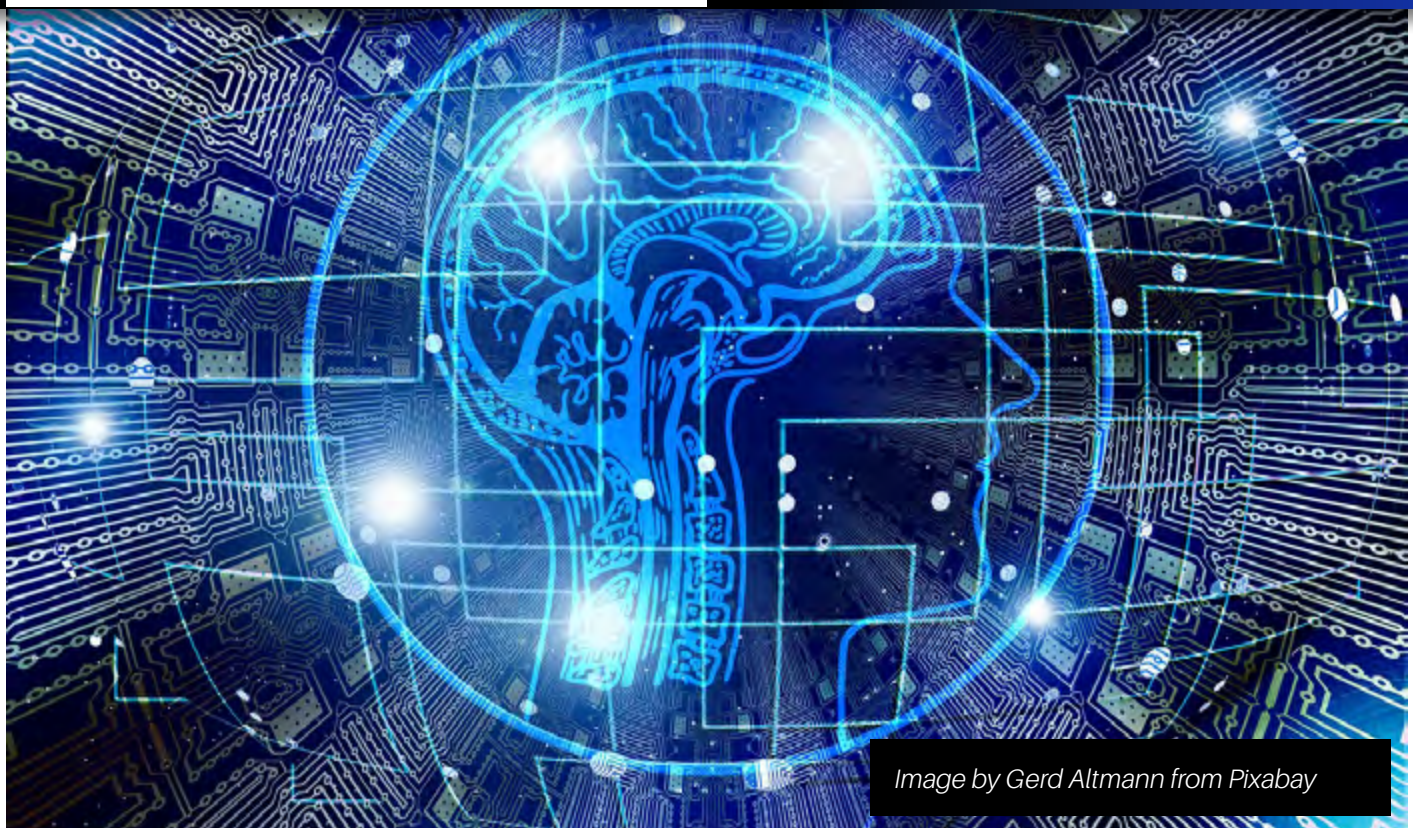


Image by Gerd Altmann from Pixabay

Proteins and natural language: Artificial intelligence enables the design of novel proteins

Date: August 4, 2022 | Source: Universität Bayreuth

Researchers have successfully applied a computer-based natural language processing model to protein research.

Artificial intelligence (AI) has created new possibilities for designing tailor-made proteins to solve everything from medical to ecological problems. A research team at the University of Bayreuth led by Prof. Dr. Birte Höcker has now successfully applied a computer-based natural language processing model to protein research. Completely independently, the ProtGPT2 model designs new proteins that are capable of stable folding and could take over defined functions in larger molecular contexts. The model and its potential are detailed scientifically in Nature Communications.

Natural languages and proteins are actually similar in structure. Amino acids arrange themselves in a multitude of combinations to form structures that have specific functions in the living organism -- similar to the way words form sentences in different combinations that express certain facts. In recent years, numerous approaches have therefore been developed to use principles and processes that control the computer-assisted processing of natural language in protein research. "Natural language processing has made extraordinary progress thanks to new AI technologies.

Today, models of language processing enable machines not only to understand meaningful sentences but also to generate them themselves. Such a model was the starting point of our research. With detailed information concerning about 50 million sequences of natural proteins, my colleague Noelia Ferruz trained the model and enabled it to generate protein sequences on its own. It now understands the language of proteins and can use it creatively. We have found that these creative designs follow the basic principles of natural proteins," says Prof. Dr. Birte Höcker, Head of the Protein Design Group at the University of Bayreuth.

The language processing model transferred to protein evolution is called "ProtGPT2." It can now be used to design proteins that adopt stable structures through folding and are permanently functional in this state. In addition, the Bayreuth biochemists have found out, through complex investigations, that the model can even create proteins that do not occur in nature and have possibly never existed in the history of evolution. These findings shed light on the immeasurable world of possible proteins and open a door to designing them in novel and unexplored ways. There is a further advantage: Most proteins that have been designed de novo so far have idealised structures. Before such structures can have a potential application, they usually must pass through an elaborate functionalization process -- for example by inserting extensions and cavities -- so that they can interact with their environment and take on precisely defined functions in larger system contexts. ProtGPT2, on the other hand, generates proteins that have such differentiated structures innately, and are thus already operational in their respective environments.

"Our new model is another impressive demonstration of the systemic affinity of protein design and natural language processing. Artificial intelligence opens up highly interesting and promising possibilities to use methods of language processing for the production of customised proteins. At the University of Bayreuth, we hope to contribute in this way to developing innovative solutions for biomedical, pharmaceutical, and ecological problems," says Prof. Dr. Birte Höcker.

Image by Tomislav Jakupec from Pixabay

New molecule may prevent age-related diseases and increase life expectancy and wellness, study suggests

Date: August 1, 2022 | Source: The Hebrew University of Jerusalem

Researchers have identified a group of molecules that enable cells to repair damaged components, making it possible for those tissues to retain proper function.

While breakthroughs in the world of medicine and technology account for the global increase in life expectancy, improvements in quality of life for the elderly population lag far behind. Longevity without a decline in health is one of the major challenges that faces the world of medicine.

A new study led by Professors Einav Gross and Shmuel Ben-Sasson of the Faculty of Medicine at the Hebrew University of Jerusalem (HU) has identified a group of molecules that enable cells to repair damaged components, making it possible for those tissues to retain proper function. The efficacy of the molecules was demonstrated on a model-organism. The research team examined the effect of various therapies on longevity and quality of life, and successfully proved they

can protect the organism's and human cells from damage. Their findings were published in Autophagy.

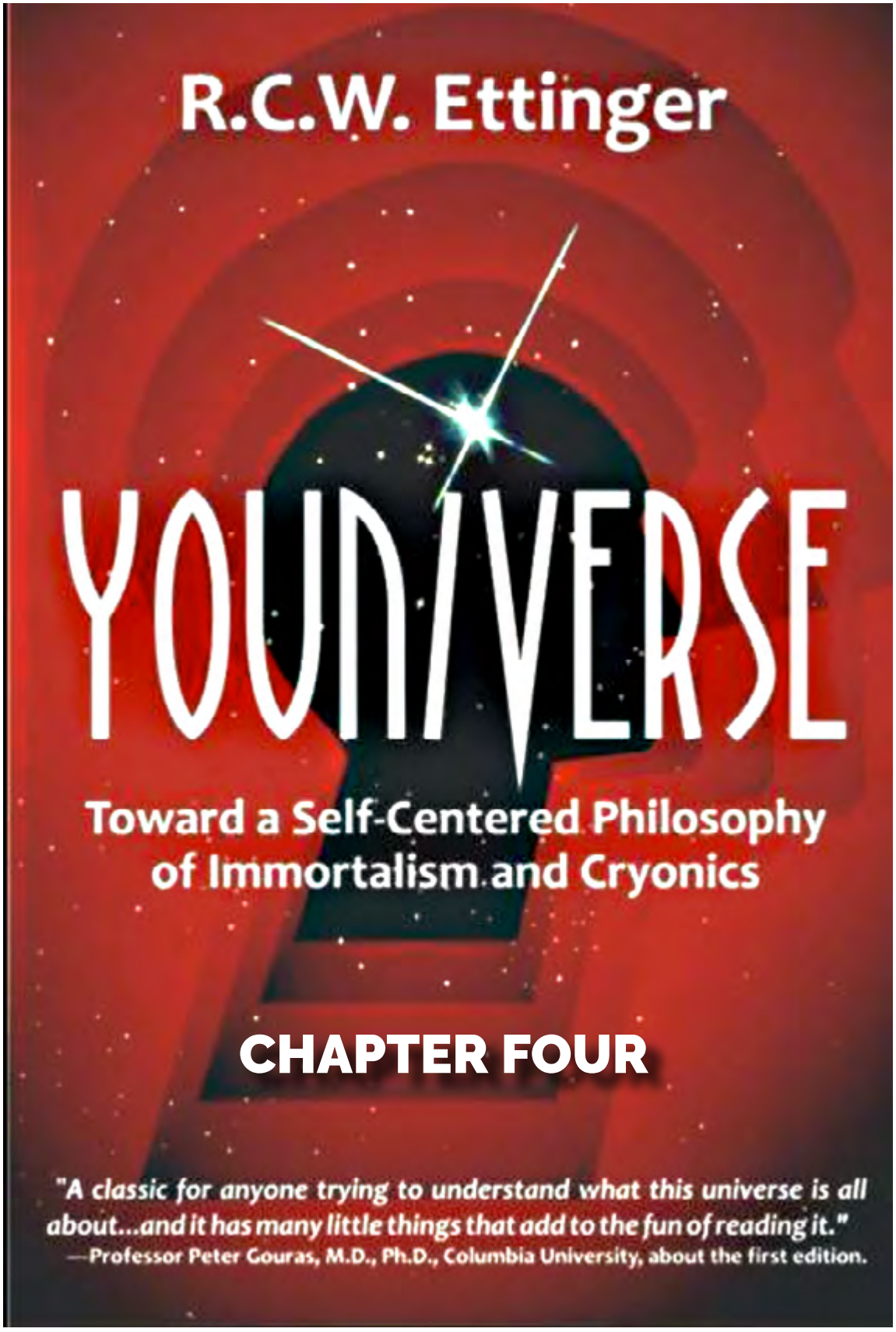
Currently, a major factor in aging tissues is the reduced effectiveness of the cell's quality-control mechanism, which leads to the accumulation of defective mitochondria. As Gross explained, "mitochondria, the cell's 'power plants,' are responsible for energy production. They can be compared to tiny electric batteries that help cells function properly. Although these 'batteries' wear out constantly, our cells have a sophisticated mechanism that removes defective mitochondria and replaces them with new ones." However, this mechanism declines with age, leading to cell dysfunction and deterioration in tissue activity.

This degenerative process lies at the heart of many age-related diseases, such as Alzheimer's disease, Parkinson's disease, heart failure and sarcopenia, which are on the rise. Gross and Ben-Sasson's study may have far-reaching practical applications since their new technology, developed at Hebrew U., helped create innovative compounds to treat diseases that are currently incurable. The study also showed that these molecules can be used preventively. "In the future, we hope we will be able to significantly delay the development of many age-related diseases and improve people' quality of life," shared Ben-Sasson. Further, these compounds are user-friendly and can be taken orally.

To advance their important research and translate it into medical treatment for a variety of patients, the research team, together with Yissum, Hebrew University's tech transfer company, established Vitalunga, a startup that is currently developing this drug. "Ben-Sasson's and Gross's findings have significant value for the global aging population," noted Itzik Goldwaser, CEO of Yissum. "As Vitalunga advances towards pre-clinical studies, they're closer than ever to minimizing the unbearable burden that aging-related diseases, such as Alzheimer's and Parkinson's, has on individuals, their families and our health care systems."

CI Reading Room

Serializing essential works on cryonics



Chapter 4

Determinism & Free WIll

Everything not forbidden is compulsory,

--Murray Gell-Mann

Gell-Mann's "Totalitarian Principle" rules one possible version of our universe, which many people love to hate.

Determinism is the doctrine of the (strict) rule of law in the universe. This means that every successive state or configuration of the universe (or of any subsystem, such as you) is the inevitable and inexorable outcome of previous conditions as enforced by the rules of physics. (Leading-edge physicists such as David Deutsch currently believe that the "multiverse" of one version of quantum theory is deterministic, although the "universe" of any individual is not, or at any rate, is unpredictable even in principle.)

Some people like to say, "Anything is possible." Actually, almost nothing (out of all imaginable things or events) is possible, because only an infinitesimally few things compared to those imaginable) seem to be permitted by the laws of physics (if those are fixed)--and that is only the beginning. If the universe runs strictly by law, as the classical (Newtonian) physicists believed, then the only things that are possible are those that actually happen. Nothing is left to chance or whimsy-perhaps not even the whim of God, according to some of those scientists.

Adoption of the Newtonian/Laplacian view was a tremendous advance and triumph of the human mind. The primitive view of the world-dominant until very recent times, and still looming large in the thinking of many people-held that the world embodies large elements of magic, luck, or caprice. After all, this was common sense, since experience proved that predictions were hazardous and unexpected and mysterious things frequently occurred. If we can't understand it, are we not likely to conclude it isn't understandable?

But the great initial successes of Newtonian mechanics, including celestial mechanics, and other elements of classical physics and chemistry, tended to convince scientists that the universe is orderly, that events are not even partly haphazard but are determined in complete detail by preceding conditions and the operation of natural laws. (A simplified paradigm is that of the pool table: where a ball goes, and how fast, is determined in precise detail by the direction and velocity of the impacting ball.)

In astronomy, success appeared complete in the 19th Century: the motions of the planets could be predicted with accuracy equal to that of the original observations. Knowing the configuration of the Solar System at a given instant, one could apply Newton's laws of motion and gravitation and infer all past and future configurations in utmost detail. (Or so they thought.)

In terrestrial mechanics and chemistry, there were similar successes. There is no guesswork in the operation of a steam engine; if its construction is accurately known, its behavior can be accurately predicted. Likewise, in chemistry: a carefully prescribed procedure always yields the same results. Great strides in knowl-

edge were eradicating vast areas of obscurity and ambiguity, and the trend seemed obvious. Pierre Simon de Laplace, the great French mathematician, summed up the classical view by likening the universe to a machine, its molecules, waves and other elements dancing in perfect harmony and scrupulous obedience to the laws of nature. According to Laplace, if a brain of sufficient magnitude could be given complete information about the world at a given moment-precise positions and velocities of all its particles, and so on --that brain could infer the world's entire past and future history. The universe can be likened to a great machine, with all its parts-including people-cogs or smaller machines.

Conclusion or Premise? The deterministic view was-and is-based partly on evidence and partly on predilection. If a classical scientist found that two apparently identical experiments gave different results, he assumed the presence of "hidden variables" or unrecognized factors affecting the results. That identical situations must evolve in identical ways is for many people an axiom; they cannot conceive of any alternative-certainly not in an understandable universe.

The Value of Determinism: This attitude is extremely fruitful. The scientist keeps digging and digging, and is never satisfied with anything short of complete prediction and maximum control. Indeed, it is the application of this attitude-even by those who claim not to have it that has produced virtually all of our science and technology.

For an immortalist and cryonicist, the value of a deterministic attitude is obvious. Taken to extremes, determinism implies that, in principle, nothing is ever irrevocably lost. Every smallest bit of information about the past and future is implicit in the present. When we become sufficiently like Laplace's superhuman observer, we will (with reservations noted below) be able to infer as much as necessary not just about frozen patients-that's relatively easy-but even about Nefertiti, even our many times removed grandfather (or grandmother) Ugga Bugga, by studying the traces that their existence and actions imprinted on the universe. It will then be possible to reconstruct them (and fulfill the great moral imperative of Fyodorov).

Sadly, even if this is possible in principle, the more extreme applications may never become possible in practice. Tracing back lines of causality (even with many "anchor" points) quickly becomes !!!exceedingly!! difficult, and we may never have enough time or computing power. But we can probably forgo the more extreme applications without too much hardship. It remains true that the deterministic viewpoint is an important buttress of optimism. It is by no means a prerequisite of immortalism, but it helps. Very broadly, it suggests that-faced with any problem-we can figure it out, and we can fix it.

Conservation of Information: According to the information-theoretic" criterion of death, a person (brain) is recoverable, in principle, if enough information remains in the brain (preserved cryogenically or otherwise) to allow inference of the original configurations. (In fact, this is not even a necessary condition, just a sufficient one, since often it might be possible to infer at least some of the original brain states, such as memory traces, from outside information.)

But determinism is very nearly equivalent to the existence of a law of conservation of information that information cannot be created or

destroyed, in any isolated system. I think this is sufficiently obvious, in general, not to need further pursuit. (However, some cosmologies envisage portions of the universe becoming permanently isolated from each other, with loss of information. This remains highly speculative.)

But I say "very nearly" because it will doubtless occur to the reader that a present state of a system might be compatible with more than one state at some specified prior time. Either Pasti or Past2 might yield Now. As a crude example, if a ball is rising now, it might have been thrown up or it might have bounced up-no way to tell from a very local view.

However, this caveat is of no practical importance, because the odds are extremely long against any ambiguity in a system of macroscopic size, let alone the universe as a whole. History is unique - again, disregarding the possible complications of quantum theory and speculative cosmologies.

Would such a conservation-of-information law be a Good Thing from the human perspective? We are not yet prepared to deal with that question, but at least the law would allow us-in principle-to recover anyone from seeming oblivion.

Artful Dodgers: The "free will" people and other anti-mechanists and dualists seem to think that they have alternatives to offer, but as far as I can see, this is not so.

The only alternative to the rule of law (determinism) that has ever even been suggested, as far as I know, is the partial rule of "chance"-and that is essentially meaningless. "Ontological indeterminacy" conceivably might mean that certain effects arise in our (part of the) universe as a result of causes in another (part of the) universe, and this "other" is forever beyond our reach for investigation or influence. (For "other" one might substitute "God", or possibly another part of the "multiverse". This is perhaps not logically impossible, but if we are going to speculate in this manner, then we have to ask how events arise in this "higher" (lower?) (part of the) universe. Again, either there is a rule of law (determinism), or else one must postulate still another universe or another level of the universe; and so on.

The obvious riposte of the dualists and dice-throwers is that mainstream physics today does accept a degree of quantum randomness in the fabric of spacetime. That is indeed an effective debating point, but does not touch the merits of the argument. As far as I can see, a truly basic randomness is meaningless and cannot exist. Let's look at this in a bit more detail.

The Meaninglessness of "Chance": Uncertainties exist in the mind, or from the point of view of the observer, since our predictive and even descriptive powers are limited, so of course, in this sense, "chance" is common in everyday life. In current views of quantum theory, there are thought to be objective, irreducible uncertainties in physical phenomena, a blurriness or fuzziness in the world itself. Nevertheless, it seems to me that any truly fundamental element of chance" or randomness in the physical world is impossible.

Causelessness: Can anything happen without a cause? Primitives had little knowledge or control, and consequently believed that the world is full of caprice, the usual metaphor being willfulness of the gods. But the weight of cumulative experience and the modern scientific outlook suggest that there is always a detailed explanation of why things happen

exactly as they do, and not some other way. There seem to be only two tentative possible exceptions.

One possible exception, besides quantum theory, concerns cosmology and ultimate origins. For example, if the universe extends into an infinite past, perhaps the whole thing never started and therefore never had a "cause" in the usual sense. It "just is".

Or if the Big Bang notion is correct, the material universe, including time itself, had a beginning but there was nothing before that, and "before" in this case is not even meaningful, since there can't be a "before" the existence of time; there can't be a time before time.

If the universe is eternal and causeless, or if it had a beginning which was also the beginning of time, then one might say that things are the way they are by "chance"-which is only a label for ignorance.

Some of the biggest brains in science believe the best ideas in quantum theory and cosmology imply-although they don't usually say it in these words-that everything is causeless, in the following sense:

Quantum rules rule, and these rules require that successive quantum states of a system are jumps from one "location" (in phase space) to another. (As a simple example, an atom can jump or fall from a higher to a lower energy state, releasing a photon of radiative energy in the process.) There is nothing in between, no smooth transition, and absolutely no way to predict the future of any particle or system, except in the statistical aggregate. Or as another example, a radioactive nucleus will decay at some point, emitting energy, but there is, in principle as well as in practice, no way whatsoever to predict when this will happen, even though we know the halflife of the atom or the probability of decay in any given period. Another way of saying this is that not only do we not know what will happen, but the world itself doesn't know" either.

One who believes this nonsense is the eminent cosmologist Alex Vilenkin, director of the Tufts Institute of Cosmology and author of Many Worlds in One (Hill and Wang, 2006). With all due respect, this is just silly. It is much more reasonable to assume that, as we learn more, a sense of order will be restored.

Free Will

There was a young man who said, "Damn!

At last I've found out what I am

A creature that moves In determinate grooves,

In fact not a bus but a tram."

-Maurice E. Hare

There is no free will problem-only a free will problem problem. That is, the only problem is why some people think there is a problem, and how to deal with that. Strangely, the misunderstandings persist to this day and in some of the otherwise brightest minds.

There is no such thing as "free will" in the sense usually intended-yet it is important, and few writers have dealt with it correctly.

Most of the pother is just the usual tiresome language difficulty with a dash of the old dualism. But a practical question remains, as we shall see.

An Empty Concept: In general, there is not-and cannot be-any such thing as "free will" in the usual sense of antideterminism. ("I am not a machine.") In this sense, "free will" is a

meaningless term.

We have already seen that the universe is either wholly deterministic, or else (in current quantum theory) deterministic with a leavening of randomness; no other alternatives have ever even been proposed. Neither determinism nor randomness leaves any room for "freedom" in the sense of ability to interfere with the unfolding of events or with our own present nature. We are either "mechs" or "randomechs". Our thoughts and impulses, as well as our actions, result from conditions over which we have absolutely no prior or instant control.

We can belabor the point from a slightly different direction by demanding that the free-willers define what they mean by that term-and insisting that there be no circularity in the definition, no "explaining" freedom by using equivalent words. Try it: you won't like it (if you are uncomfortable with mechanism).

Sometimes the free willer will just say that he knows he has free will by direct experience, on the model of Descartes Cogito, ergo sum. But that is just another way of saying that he trusts his intuition. But we don't trust his intuition, and shouldn't trust our own either.

Schopenhauer & Spinoza Help Out. To see the vacuity of "free will", it suffices for some people to note Schopenhauer's reminder: "Der Mensch wollen was er will." ("Man can do what he wills, but he cannot will what he wills.")

That is, postulating "free will" leads to an infinite regress. At some level, I make a decision or produce an impulse; but how does this arise? If I claim free will, it must be that some inner or more basic part of me produced the decision or impulse. But then, how did that happen? What caused or shaped it? If not the mechanics of my nature and circumstances, then it must have been some still more interior or more basic aspect of myself. And so on; this is not fruitful.

Again, Spinoza: "Men think themselves free because they are conscious of their volitions and desires, but are ignorant of the causes by which they are led to wish and desire."

An act of will is an impulse or decision -an event in your brain. How do events arise? By the operation of natural law (physics) acting on existing conditions. No other way has ever even been proposed-except in terms so vague as to be meaningless... And this is just another way of saying that you are indeed a machine, since nothing other than machinery (mechanism) exists or can exist.

Ewing Chimes In. Cambridge's A.C. Ewing (The Fundamental Questions of Philosophy, Collier, 1962) has gently chided the indeterminists, writing that the determinist only maintains that a man's actions are determined by his own character and his circumstances, so that he must have done what he did, his character and circumstances being what they were. In other words, a man's character just is the man, and it is no lack of freedom to be determined by oneself.

This is not likely to appease the hardcore indeterminist, who after a little floundering may say something like this: "You are really saying, Prof. Ewing, that a clock is free if it displays the time, according to its character. Is my freedom no different than the clock's, or that of a computer which is free to follow its program?"

The difference is that a person or a higher animal) has consciousness, and is free at the conscious level with respect to conscious choices.

"Choice" vs. "Preference": Still belaboring the point, let's look at it from a slightly different angle. What does it mean to choose?

It means to express a preference, by making a decision or taking an action motivated by that preference.

But where or how did that preference arise? It grew or developed along with your maturation and experience; it was already embedded in you when it became the focus of your attention.

Well-the Devil's advocate clutches for straws-even if my preferences were already there, am I not free to choose which actions to take to attain my ends? If I am not free to choose ends, am I not at least free to choose means?

That's just word-smoke. Any situation of choice, whether of "ends" or of "means", requires a conscious or unconscious examination of the preferential hierarchy, finding the highest and acting on that finding. I decide to eat pie instead of cake, to reach for it with my right hand or my left, etc. The stakes may be high or negligible-the principle is the same. The preferences were already there, and acting on them is automatic.

Whoa! Automatic? It sure doesn't feel automatic when I am struggling with a conundrum or dilemma or challenge or peril. I sweat it out, man!

That is often a feature of conscious thought. It involves feeling; that's what makes it "conscious." It often feels like work, among other things. It has what the psychologists call affect. But your application of conscious effort does not change the fact that you are trying to rank your priorities, your preferences, and they are already there. You cannot create them on the spot, except in the sense that your effort can cast new light for the illumination of your cognitive processes.

Randomness, Predictability, & Free Will: A short detour now is required to deal with the astonishingly obtuse claim (of many people in recent years!) that quantum uncertainties somehow rescue the notion of free will. Even so brilliant a scientist as Frank Tipler (The Physics of Immortality, Doubleday, 1994) has said that we have free will if (a) we think we do (i.e., we have it at the conscious level) and (b) our decisions are in part the result of random processes at a subconscious level.

Tut.

As discussed above and in another chapter, modern physics has (by consensus at least) discarded the Newtonian/ Laplacian notion of a fully mechanistic universe and introduced instead the proposition of a random element, usually manifesting itself noticeably only at the level of elementary particles. In other words, the world is ruled not just by law, but also in part by chance.

As already noted, in the view of some, including myself, "randomness" at the most basic level is a meaningless concept. But let that go for now; the point here is that randomness does nothing to save free will.

If my impulses and decisions are the result not only of my nature and my situation, but also in part of chance, how does that increase my freedom? My brain processes are still "imposed", no less by chance than by law. There is no freedom in randomness.

Part of the motivation for the quantum-free-will people is that they want to avoid predictability, which they associate with the hateful

idea of machinery. They want somehow to cling to autonomy, although without defining what this means. They think predictability is undignified, and quantum theory does indeed limit predictability. But how does that help my dignity? If I not only rock to the tune of the celestial orchestra, but also roll with some subterranean dice, that helps my dignity not at all.

In fact, random elements reduce my freedom, since I may be denied the fruits of my decisions!

The whole "unpredictability" motivation is spurious. If I predict that a good man will make a good choice in a certain situation, or a sensible man a sensible choice, how is he thereby diminished? Would he rather be unpredictable, would he rather be "free" to make an evil or stupid choice? Hardly.

I have zero hope that my discussions will bring to an end the debate, lasting for centuries already, between the determinists and-what shall I call them? -the gamblers who look for salvation in cosmic dice. The determinists include David Hume (who was right about almost everything, one of the clearest minds of all time), Laplace in the context of Newtonian physics), Julien de la Mettrie (1751), and Moritz Schlick. The gamblers include the physicists Charles Sanders Peirce and Arthur Holly Compton as well as the philosopher Karl Popper and many others. I'll just look very briefly at the last three-all of whom wanted desperately not to be mere machines.

Peirce, an experimentalist, noted that all measurements are imprecise, and concluded that therefore there is room for chance. It just doesn't follow. Even if that conclusion did follow, an ever narrowing margin of error would mean an ever-narrowing "freedom" that would ultimately be trivial if not meaningless.

Compton was haunted by the "nightmare" of physical determinism. If the atoms of our bodies follow physical laws as immutable as the motions of the planets, why try? He embraced quantum indeterminism as savior.

And Popper (despite being basically a positivist and realist) seems to approve, saying in effect that if all our thoughts, feelings and efforts can have no practical influence upon what happens in the physical world, then they are mere illusions, at best superfluous byproducts (epiphenomena') of physical events. This is clearly confused thinking: see above and below.

Relative Free Will & Fatalism: Although an absolute, antideterministic "free will" is meaningless, everyone recognizes that there exist degrees of freedom of the will at the conscious level, in the sense that someone impaired or seduced or coerced has reduced freedom. In this sense, I am "free" if I am allowed to function in a "natural" way in an appropriate environment after normal conditioning

We are all familiar with the poor-helpless-me syndrome. In the terms of West Side Story, "I'm depraved because I'm deprived." Custom and law acknowledge the doctrine of reduced capacity or diminished responsibility. As an extreme case, if someone forcibly injects you with a psychedelic drug, you are not account able for your actions under its influence.

All these variations give rise generally to political or practical questions, not philosophical or scientific ones. But in at least two respects, fundamental questions do arise.

First, if we discard antideterministic free will,

we have to escape fatalism.

Fatalism is the notion that we have no real choices, or that our choices don't matter, because que sera, sera, what will be, will be-and therefore we need not make choices. If our choices are irrelevant, why bother? If future history is set in stone, already engraved on God's tablet, why struggle?

In the most prevalent version, found fairly often among Moslems, the focus is on just a few facets of existence, especially the date and manner of death. When you gotta go, you gotta go. Kismet. Karma. The will of Allah. There's no dodging the bullet with your name on it. When your number is up, it's up. And if you're an airline passenger and the pilot's number is up... You will die when you will die, and it is more dignified and less stressful just to go with the flow.

The point is that we do have a choice at the conscious level, and this is where we operate, where we live. The fact that our fates are fixed in some sense, and that at a basic level our brains are mechanisms, does not change anything with respect to our conscious options. It is crucially important to you not to be seduced into abdicating responsibility.

You have to make rational decisions about what to expect of yourself and what to demand or accept from others. Errors in either direction-too demanding or too permissive-can be expensive, even fatal.

If there were anything logical about his view, the fatalist ought to go all the way and just lie down and quit altogether. Determinism applies to all things, the trivial as well as the pivotal. If it doesn't matter what you do, why do anything?

But fatalism is not logical, and in particular, it is not a logical consequence of acceptance of determinism. People sometimes ask: "If everything is foreordained, if every taste and tickle was implicit in the Big Bang, then how can it matter what you do? Won't your fate manifest itself in spite of what you do?"

No, it will not. It manifests itself because of what you do.

"But aren't our thoughts, decisions and impulses themselves predetermined? And doesn't that leave us essentially helpless and hopeless?"

Not at all. We have choices on the conscious level--and that is where we live.

"But doesn't that mean our freedom and control are illusory?"

Yes-if we define "freedom" and "control" in the wrong way. Some of these questions should be clarified in the continuing discussion.

Other kinds of Limits: For those who feel uneasy about the strictures of determinism, it sometimes helps to remember that we operate within narrow limits from other points of view also. For example, we have (at present!) just our standard genome; we are merely human, with all that implies about builtin drives, conflicts and other (temporary) traits and limits.

We are the products of evolution, which cares nothing about individuals or species or even life itself. We see what history and chance permit us to see, no more; we feel what we have been bred and conditioned to feel.

Someone or something else chose the fundamental constants of nature, not we. Someone or something else wrote the rules, not we. By some wild chance, our parents were chosen

for us, and our historical era. ("I, a stranger and afraid, in a world I never made.") Any "freedom" that might hypothetically otherwise exist has necessarily been diluted almost, if not quite, to infinity.

If all this doesn't bother you, why should the presence or absence of ordinary free will"?

The Almost-Machine: Finally, it may help nail the lid on the coffin of "free will" if we look further at the quantitative aspect.

The "free will" proponents have several possible motivations, most commonly, the desire to escape determinism or predictability or mechanism. Yet they are forced to concede that usually we operate in an essentially deterministic way, if not in the details, at least in the sense of causes and consequences.

Should you walk a few blocks to the drug store, or drive? If time is the main consideration, you will drive-a choice "forced" or "imposed" by your values and your circumstances. If you need the exercise and it's a nice day, you may decide to walk-but this decision too is forced or imposed by values and circumstances.

Now suppose you tentatively make the "rational" or natural choice first, but then perversely change your mind because you don't want to be predictable - because you want to spit in the eye of determinism-then what? Has "free will" prevailed? Or were you also programmed to this kind of juvenile rebellion?

The point is that, even if we leave open the possibility of some kind of free will at the margin, we are still, inescapably, mostly mechanistic at an absolute minimum. Are you going to fret and fume and fuss over this putative marginal "freedom"?

Some will say yes. They are usually thinking about the "moral" choices in difficult circumstances. Should I indulge myself, take the "easy" way out, or should I bite the bullet and do my duty? Free will proponents may think of the situation as a conflict of pressures or drives, or temptations vs. commandments; "free will" somehow allows the innermost self, not necessarily to overcome evil pressures so good may prevail, but at least to struggle and sometimes win.

As already explicitly and implicitly noted, this is just illusion. It is just a confused interpretation of the fact that we are free at the conscious level-and there is very little more to be said. But let's say a little more anyway.

Rensch's Biophilosophy: Bernhard Rensch's Biophilosophy (Columbia U. Press, 1971) offers a biologist's views on some of the traditional problems of philosophy, including the "free will" question. His view is essentially the same as mine, but reinforced by many specific examples of how our choices and the limitations of our capacity to make choices-are shaped by our heredity and conditioning. Just a very few scattered and abbreviated, paraphrased fragments:

In the 6th century before Jesus, the Greek physician and philosopher Alkmeon realized that thinking and percep- tion take place in the brain. (Aristotle disagreed, as did many philosophers and scientists even into recent centuries.) Countless investigations of brain function point to its mechanistic nature, hence to the view that we are machines, not only in our outer or peripheral parts but in our thoughts and impulses.

The primordial, lifeless world surely was purely causal; there was no "free will" in plasmas or molecules or dust or stars. If there is free

will in an antideterministic sense, it came with humanity, or possibly vertebrates-in any case, just a moment ago on the universal time scale. Somehow, complexity of organic matter introduced something that rudely interrupted the order of primitive nature, interfering with it in some unknown, unknowable and unpredictable way. Who can believe such a thing?

The more closely we are able to investigate animal behavior, the more predictable it becomes. Simpler animals are more easily studied and more predictable, but the trend is clear. Outside of the still controversial quantum arena, there is no reason whatsoever to think that humans are exempted from the strict rule of law. We do what we can and what we must-and the two are identical.

It's Peachy keen to be a Machine. Wrapping it up, I have tried to show that losing "free will" is really no loss, and that since everything else in the world is mechanism, you shouldn't feel insulted if you are too. But beyond that making explicit what was previously implied-there is a wonderfully positive aspect to mechanism. Just think:

If you believe in "free will", and you believe the "freedom" comes from a random element in the world, then you must consider that you are at the mercy of chance. In any case, you probably believe that you can be "fixed" or improved only by indirect methods, injunctions and persuasions, so lamentably fallible. If you are a Calvinist or something akin, perhaps you think you were doomed from the Year One to be just yourself until the (very) bitter end.

But if you are a mechanism-what a glorious potential. Machines can be repaired and improved. For myself, I hope to be retrofitted on a regular basis, when the technology matures.

Next Issue:

Chapter Five: Me First and Feel-Good Foundations of Value

10 Worst Mistakes in Cryonics

Don't ruin your chance for a succesful suspension

1) Not signing up ahead of time

Becoming a member, having contracts in place, and having paperwork in order should not be a last minute decision. Waiting until the last minute or after death results in an unnecessary delay of care or worse- No suspension at all! Don't wait. Sign up here and be prepared. **https://www.cryonics.org/membership/**

2) Not providing proof of funding

Some people believe that they can worry about funding later or if they have funding, they have put off providing proof of funding to CI. This should be done annually. Failing to provide this can result in a delay of care while the funding clears, which can take weeks. Send your proof of funding to CI now to be prepared.

3) Not telling anyone your plans

Being reclusive or not telling family or friends your wishes is not recommended. You should not be afraid to tell those around you what your wishes are, especially your next of kin. Wearing a bracelet, necklace or having identification or other items in view can speak to your wishes. This is all you have when you can't speak for yourself. Disasters have resulted in the past from not sharing. Talk with your family, close friends and your estate attorney, so you can be prepared.

4) Not planning

Many think cryonics is a turnkey service where you can just sign up and let fate take over. No matter how much you pay for cryonics, you are the only one who can make sure that you will have the best chance by planning. CI has provided a lot of information on our website and in our standby manuals. Those who plan succeed those who don't fail.

For more information visit: https://www.cryonics.org/resources/ci-standby-kits-and-instructions

5) Not notifying CI of Emergencies

There is no way that your cryonics provider can help you if they do not know of your emergency. Your family, friends, standby group or next of kin must immediately contact CI when you are having health issues or worse. It is also important for CI to know if you have up and coming surgeries or procedures, including terminal illness. Patients with a diagnosed terminal illness could enter hospice care, which might help your cryonics situation vastly. Any delay in notifying us directly could result in a poor suspension. Those helping you must have simple and clear instructions.

Here are some tips... https://www.cryonics.org/resources/category/C57/57

6) Committing suicide

Anyone who commits suicide who is not terminally ill or breaks a local law in doing so is potentially putting both themselves and our organization at great risk. CI will not risk itself for people who engage in behavior that goes against our mission to preserve life. Such activity will likely lead to an autopsy and long delays, rendering the suspension process substandard or impossible to carry out.

Do not consider cryonics as a way out of your problems. You are likely to not get suspended under those circumstances. If you do not have a terminal illness and are considering suicide, you should seek mental health advice and treatment as soon as possible. https://www.mentalhelp.net/articles/depression-hotline/

7) Engaging in Risky or illegal activities

Risky behaviors or associations that lead to the patient dying around suspicious circumstances will also likely lead to mandated autopsies that will also stand in the way of your cryonics wishes. It is best to use common sense and not put yourself in harm's way. Not only could your

10 Worst Mistakes in Cryonics

life be ended, so too could your chances of cryonics suspension or future reanimation. Use common sense and stay safe.

8) Providing financial or legal incentives that encourage your **not** being suspended.

Leaving all of your insurance or cryonics money to family if you are not suspended is certainly an option at CI, but ironically it does provide financial incentive for hostile family members to block your suspension. As often is the case, people will make sure you are not suspended to get a hold of your money.

One suggestion is to leave family and next of kin some separate money from cryonics funding while suggesting that Cryonics funding go to cryonics as a donation no matter if you are buried or suspended. In addition, family or next of kin can be further compelled to cooperate if they will actually lose the money that is allocated to them for not cooperating. It is also suggested that your family be made fully aware of your wishes and stipulations, so they know what the results of their actions will be. You want to make sure you put incentives and disincentives in the correct place, so that your wishes are honored. It is suggested that your will and cryonics documentation reflect this and get reviewed by an attorney. See https://www.cryonics.org/resources/protect-yourself-from-legal-threats

9) Not removing a hostile next of kin from rights to your remains and finances

In many states and areas you can legally remove a hostile family member or next of kin from your estate. You can reassign someone who is sympathetic to cryonics and who has the legal authority to disposition of your remains, as well as your assets. In some states and locations there are disposition of remains reassignment documents, as well as powers of attorney, both in regards to financial as well as medical decisions. The executor of your will or anyone involved with making decisions should be sympathetic to your cryonics wishes. It is your responsibility to make your wishes very clear and to remove any doubt or potential legal resistance from family or next of kin.

We suggest seeking legal advice to help you in this regard. Some members have even made a video statement of their wishes and given it to both their cryonics organization as well as their attorneys. Not being careful could mean that you don't get suspended, despite your wishes. Many are surprised to learn that they lose their rights upon legal death. See an attorney and prepare.

10) Dying under less then favorable conditions

This seems harder to control then the other situations, but there are some things you can do to make your situation more favorable. You can diet, exercise and follow the latest official medical advice to stay healthy longer. The longer you are alive, the better the technology will probably be for suspending you and the closer we will be to a future that may be able to reverse your condition.

You can also avoid travel to remote or hostile places where such travel is risky. Some overseas travel can result in long delays both logistically and bureaucratically. In general, dying near your cryonics provider or cryonics standby group helps your chances. Living a healthy lifestyle and staying sociable, while surrounding yourself with people who will act on your behalf is paramount. Building solid, positive relationships with good people is probably one of the most important things you can do to have your wishes honored. Take care of yourself and maintain social connectivity.

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Bulletin Board

Writers Wanted

Got something to say?

The CI Newsletter is looking for submissions from our readers!

If you've got a great idea for a story, please forward it to:

dg@cryonics.org

CRYONICS QUESTIONS?

Need some help with your membership?

Want to understand your suspension options?

Need to fill out important cryonics paperwork?

CONTACT US!

Our team is here to help.

1-(586) 791-5961

FREE Memberships?!!

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