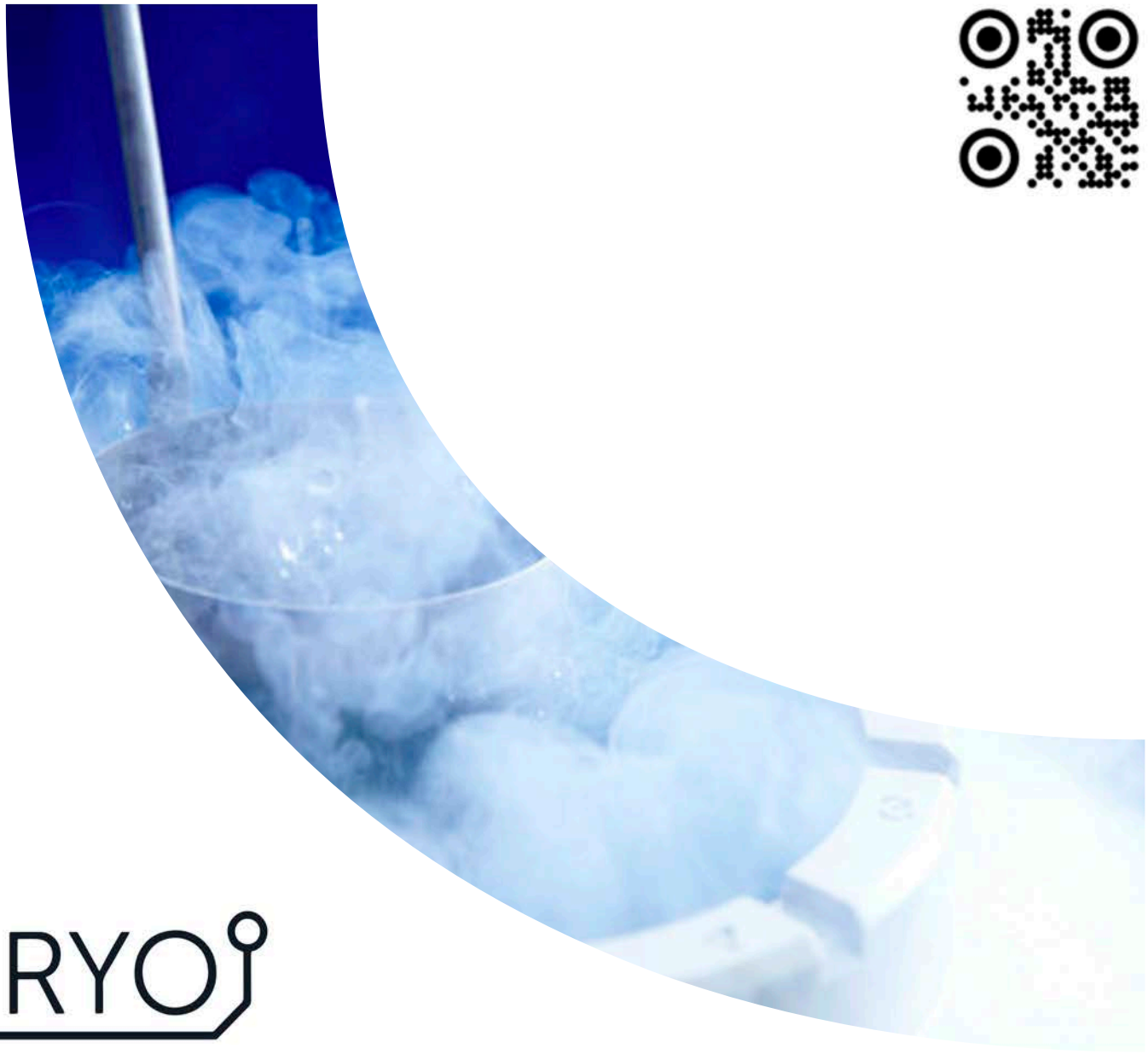

CRYO

WHITE PAPPER

HAL FINNEY-
"I WAS SURPRISED BECAUSE I ALWAYS THOUGHT THAT CRYONICS IS A THING OF A FAR FUTURE. BUT IT TURNED OUT THAT IT'S BETTER TO RELY MOSTLY ON HOPE AND THEORETICALLY CRYONICS PROVIDES ONE MORE WAY FOR A POSSIBLE FAVORABLE OUTCOME".

HAL FINNEY, A WELL-KNOWN CRYPTOGRAPHER AND A BITCOIN PIONEER. HE WAS ONE OF THE FIRST PROGRAMMERS TO WORK ON THE BITCOIN SOURCE CODE. HE WAS CRYOPRESERVED AT THE AGE OF 58 YEARS AFTER FIVE YEARS OF STRUGGLE WITH AMYOTROPHIC LATERAL SCLEROSIS.

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CRYOGEN WHITE PAPER

About the document

THE DOCUMENT IS ADDRESSED TO POTENTIAL INVESTORS AND INCLUDES A GENERAL DESCRIPTION OF THE PROJECT, A PLAN OF ITS DEVELOPMENT AND CONDITIONS FOR THE PARTICIPATION IN THE ICO.

1. INTRODUCTION

From time immemorial, mankind has endured irreversible and inevitable cessation of biological activity, for which medicine still has no remedy.

The CryoGen project, as described herein, has the objective of improving and maintaining the functional integrity of any living organism by means of cryopreservation, which cannot yet reverse death, but stabilizes the condition in the meantime.

> *Cryonics (from the Greek κρύος – cold, frost) is a technology for the long-term preservation of tissues, organs, human beings and animals in a state of deep cooling with the intention of their restoration at some future time. This is a longitudinal study (a long-term study) which is carried out in the ongoing practice of cryonics and storage of organs and organism at extremely low temperatures. Its prime objective is to develop a technology for the reversible freezing which will give an opportunity to bring cryonics patients back to normal life in the near future.*

Cryonics deals with the preservation of human bodies (after the person is legally declared dead) in liquid nitrogen at a temperature of -196 ° C with the aim to restore the life processes of the preserved people by means of scientific achievements of the future. Cryonics technologies are based on cryobiology. Cryobiology studies how the process of freezing influences biological objects. Its main goal is to develop technologies for prolonged, but reversible life suspension using ultra-low temperatures.

Cryobiology is a relatively young science. Its scientific foundations were laid at the end of the XIX century by P.I. Bahmetev, an outstanding Russian scientist who studied supercooling in insects and anabiosis in bats. In 1949, scientists discovered that glycerin can protect red blood cells from damage upon freezing: thus, it turned out to be a cryoprotectant.

Cryoprotectants are protective substances that help protect cells and tissues from freezing damage. The main damaging factor during the freezing is the crystallization of water. Cryoprotectants modify this process and can completely prevent the crystallization of water in a biological object (the process of glass formation or vitrification).

By the end of the 20th century, cryobiology had achieved significant success in the preservation of various cell suspensions, but not in the preservation of tissues and organs. Since 1985, some progress has been made in the field of the cryopreservation of tissues and whole organs when Dr. G. Fahy has discovered the non-toxic mixtures of cryoprotectants for the vitrification of tissues and organs.

Nevertheless, the method of organ cryopreservation that would be fully suitable for transplantation has not been developed yet, although experiments have demonstrated that 95-99% of rabbit kidney cells survived and functioned for a long period after the freezing.

Recently, some progress has been made. In 2013, Arigos Biomedical (USA) achieved the ideal freezing (but not thawing) of a pig's liver. Also in 2017, a group of scientists led by J. Bishop (University of Minnesota in Minneapolis, USA) performed a reversible cryopreservation of a large fragment of a pig's heart by means of adding nanoparticles into a cryoprotectant and heating in an alternating electromagnetic field with a 100% cells preservation.

For cryonics, the most important issue is a human brain preservation. Brain tissue is the most vulnerable and extremely prone to ischemia among all biological tissues. In 1999, when Dr. Fahy invited Yuri Pichugin, our Science Director, to the US to practically implement the Prometheus project, the purpose of which was cryopreservation of slices of the hippocampus of rats, neuroscientists and cryobiologists stated that it was impossible. G. Fahy and J. Pichugin had been tried to solve this problem for two and a half years and in 2001 they achieved astonishing success: thin sections of brain tissue of rats were fully restored after vitrification according to the so-called potassium-sodium criterion of tissue viability. In fact, a new branch of science, neuronal cryobiology, was created.

The article was published an the beginning of 2006 in Cryobiology, the international journal (http://www.21cm.com/pdfs/hippo_published.pdf), and these developments formed the basis for the cryonics vitrification method for Alcor, the famous American cryonics organization. Also during 2005-2007, the same team solved the task of vitrification of a rat brain and scientists for the first time achieved 65% survival of the brain tissue after vitrification. Substances that were called modifiers of the blood-brain barrier were found. Then, among 20 of these substances, two best substances were picked up and used for the development of new methods of cryopreservation of the whole brain. The best methods of cryopreservation of the whole rat brain without the application of the blood-brain barrier modifiers could give only 10-20% survival of the brain tissue.

Cryopreservation of rat hippocampal slices by vitrification q Yuri Pichugin a, Gregory M. Fahy b,*, Robert Morin a
a Department of Pathology, Harbor-UCLA Research and Education Institute, 1000 West Carson Street, Torrance, CA 90502, USA b 21st Century Medicine, Inc., 10844 Edison Court, Rancho Cucamonga, CA 91730, USA
Received 28 January 2005; accepted 17 November 2005 Available online 5 January 2006

http://www.21cm.com/pdfs/hippo_published.pdf.

Thus, according to the studies, cryopreservation technologies that will allow to keep intact up to 100% of human brain cells could be found in the future.

CRYONICS TECHNOLOGIES CLASSIFIED BY PHASES OF THEIR APPLICATION

1. PRELIMINARY PREPARATION OF PATIENTS FOR THE CRYOPRESERVATION

1.1. Signing up of a contract

You need to choose the type of the preservation: full-body or the brain/head only (the so-called neuropreservation). Approximately half of the cryonics patients choose the full-body preservation, the other prefer the neuropreservation.
Also, you need to sign various wills depending on the requirements of the country of residence and the country where the preservation will be performed. In general, all these issues are easily solved with the help of employees of the cryonics company.

1.2. Preliminary period

It is very important, to initiate surface cooling as soon as possible, especially in relation to the head of the cryonics patient after his or her legal biological death declaration. Therefore, everything required for the next phase of the cryopreservation must be prepared in advance.

1.3. Premedication and primary cooling

Immediately after the legal declaration of the patient's death, an experienced surgeon-perfusionist connects the perfusion system to the arteries and veins of the cryonics patient depending on the particularities of the circulatory system. Also, during the initial phase (up to 4 hours after the moment of the legal death), it is necessary to inject heparin into the body to prevent the formation of thrombi prior to the perfusion. The perfusion of the head and body with a special cold wash solution can very quickly cool the head to 0 ° C, thereby protecting the brain cells from the destructive effect of thermal ischemia.
Also, scientists believe. that it makes sense to inject various medications that will help to stop the negative processes in the cells and improve the efficiency of the perfusion.
In addition to the perfusion pre-cooling, external cooling of the body using cold packs or even a special cooling bath is also used during the whole cryopreservation process.

2. METHODS OF PERFUSION

In order to obtain the maximum survival rate of the brain cells, it is necessary to stick to the correct procedure of the perfusion. Parameters of brain perfusion with vitrifying mixtures:

1. The formula of the vitrification mixture;
2. Volumes and concentrations of perfusion solutions;
3. Head and perfusion solutions temperatures;
4. Perfusion pressure and rate. Viscosity of the solutions at different temperatures;
5. Methods for monitoring the degree of brain saturation with a vitrification mixture.

Let's study these parameters and methods in the description of the vitrification perfusion procedure which is currently used in the whole world.

2.1. The formula of the vitrification mixture

There are several vitrification mixtures used in cryonics.
Alcor uses the M22 mixture (from the laboratory (Medicine of the 21st Century) The cost of M22 for perfusion of one is $ 16,000.

According to thorough experiments on the heads of rats and sheep, it was found out that the vitrification mixture consisting only of ethylene glycol and DMSO (1: 1) demonstrated the results similar to M22. The cost of this vitrification mixture for perfusion of one head is only about $ 100. A license is not required, because this mixture is not patented. This mixture and its modifications are used by the Cryonics Institute.

Yuri Pichugin, a well-known cryobiologist, has developed an alternative vitrification mixture for KrioRus.

2.2. Volumes and concentrations of the perfusion solutions

The volume of the perfusion solutions depends on the degree of brain saturation with cryoprotectants. In order to avoid possible damage to cells from osmotic shock, the concentration of cryoprotectants should be increased gradually from 0% to 70% with a use of the special apparatus. In practice, perfusion solutions are administered on different stages with discrete increasing concentrations.

At the initial stage, one injects ethylene glycol without DMSO from 0% to 35% and simultaneously decreases the temperature of the perfusion solutions from 0 ° C to -10 ° C. At this stage, blood-brain barrier modifiers are also injected. Ethylene glycol is less toxic than DMSO. As the toxicity of cryoprotectants decreases with decreasing temperature, a more toxic DMSO should be introduced into the head at a lower temperature. DMSO is gradually introduced from 0% to 35% in a 35% solution of ethylene glycol with a simultaneous synchronous decrease in the temperature of the perfusion solutions from -10 ° C to -50 ° C.

2.3. Head and perfusion solutions temperatures

For the perfect perfusion technology, it is necessary to maintain the temperature of the head/body and perfusion solutions equal to the freezing temperature of the corresponding perfusion solutions. It is necessary in order to minimize the toxic effects of cryoprotectants. A special cryogenic chamber in which the patient's head will be fixed and perfused and which will lower the temperature of the chamber synchronously with the perfusion process is required. Some excess amount of perfusion solutions should be used for the fastest, most effective cooling of the head. The introduction of a final 70% vitrification mixture should occur at the lowest possible temperature from -30 ° C to -50 ° C.

2.4. Perfusion pressure and rate. Viscosity of solutions at different temperatures

The rate of the perfusion depends on the perfusion pressure, which depends on the viscosity of perfusion solutions. Viscosity of solutions dramatically increases with the decrease of the temperature of solutions. If the perfusion pressure is maintained equal to the physiological pressure (120 mm Hg), then the perfusion rate must be dramatically reduced, which drastically reduces the efficiency of the perfusion.
However, the rule P = 120 mm Hg. Is correct only for the temperature of 36.6 ° C. But even at T = + 10-0 ° C, the vessels become rigid and more resistant to the increased perfusion pressure, therefore, for example, pathologists perfuse cold bodies at hypertension up to 600-700 mm Hg.

2.5. Methods for monitoring the degree of brain saturation with a vitrification mixture

Modern imperfect control of the degree of brain saturation with vitrification mixture is carried out according to the index of refraction of solutions flowing out of the veins and trephine holes in a skull. For stable vitrification of the brain, it is necessary to saturate it evenly with a 60-65% vitrification mixture. For faster saturation, a 70% vitrification mixture is used. The introduction of this solution is terminated when the refractive index of the solutions emanating from the trephine holes in the skull corresponds to the one of a 65% vitrification mixture. This method was firstly verified by direct testing of the vitrification of the sheep brain after the perfusion. The results were good. One of the aims of the CryoGen project is to further develop and implement a wide range of tests to improve the definition of perfusion quality during the cryopreservation process and upon its completion.

3. The final stages of the cryopreservation

After the brain is saturated with the vitrifying mixture, the brain must be cooled as soon as possible to -130 ° C in order to minimize the toxic effect of the cryoprotective mixture. This temperature is advisable for the vitrified brain storage. However, it is technically more difficult than the storage in liquid nitrogen, that is currently used. The vitrified brain storage at -130 ° C would have allowed to avoid its cracking when stored at -130 ° C to -196 ° C. To minimize or even completely avoid the cracking of the vitrified brain and the body, it is necessary to apply ultra-slow cooling rates (1-0.2 ° C per hour) in the temperature range from -130 ° C to -196 ° C. For all this, modern cryogenic technology is required i.e. programmable freezers.

2. MISSION STATEMENT

Our mission is to give people the opportunity to extend their lives by means of advanced technologies, such as cryonics. Currently, too little of scientific resources and research funds is allocated to the study of cryonics technologies.

The goal of the CryoGen project is to attract the attention of the world scientific community to this technology, to stimulate fundamental research of creating a completely safe thawing technology. Our activity will boost studies and researches in this field.

The results obtained during our work can be used to improve dramatically the quality and longevity of people around the world.

The crypto-economic breakthrough provides a chance to make a breakthrough in science, due to the mechanism of crowd investing, which allows attract funds to projects 2 or 3 times faster than through the mechanisms of the classical investment cycles.

3. PROBLEM STATEMENT

3.1. Ageing as a biologically irreversible process

Every day around the world more than 150 000 people will die, some from currently incurable diseases, some by mishap from external causation, but most from the one hundred percent fatal pandemic degenerative condition simply known as ageing.

3.2. Absence of donor organs cryobanks

At the moment there is no technology for prolonged cryopreservation of donor organs and, accordingly, the problem of creating cryobanks of donor organs has not been solved, because of the logistics that will be needed to support the collection, conservation and transplantation processes. It is necessary to create medical cryonics centres that combine both clinical and scientific units. In such centres there may be cryonics storages for people in a state of cryogenic suspended animation.

3.3. Insufficient financing of fundamental research

Studies that have confirmed their relevance often do not continue due to a lack of adequate funding. For this reason, cryonics organizations are not sufficiently engaged in the research and development of cryonics, while in their practice they use the experience gained in the 90s of the last century and in the early 2000s.

3.4. Low life expectancy

Modern medicine, despite its achievements, is not able to cure all diseases. Only 50% of patients are cured of oncology. Mortality rate from strokes and cardiovascular diseases is high. And because of the short period of donor organs storage, only one out of every four people that can be saved is saved.

3.5. Space travel

Humanity grapples with the challenges of ever longer duration space travel. But clearly, the life support and provisions of space travelers with nutrition during long space voyages related to huge expenses. Thus, it is necessary to create technologies for space anobiosis to make ultra-long space travel possible.

4. CRYOGEN SOLUTIONS

4.1. Cryopreservation

Over the last 50 years scientist around the world has been developing and improving the technique of the cryopreservation of tissues, organs, the brain and whole organisms to make the future revival possible.

There are two kinds of cryopreservation:
- Neuropreservation, when only the brain is placed into cryonics storage.
- Whole body preservation, when the entire organism, human or animal is preserved.

Cryonics makes it possible to maintain the human body intact until scientists discover the ideal way to restore and return the patient to life and to full health.

Nowadays, there is a serious theoretical and experimental evidentiary support for the possibility of restoring biological organism and significantly prolonging a patient's life in a relatively near future.

The funds raised under the CryoGen project will be used for the development, testing and implementation of the technology for the reversible freezing of human organs and small vertebrates in 5 or 7 years and amniotes and humans in the near future.

Feasibility is corroborated in experiments with fragments of animal organs. In February 2017, a fragment of a pig's heart was reversibly cryopreserved, perfectly.

When this technology is fully developed, an ideal biological recovery of the body after freezing and the continuation of its vital activity will become possible.

4.2. CryoGen team has the intention of developing and implementation of:

1. Vitrification (deep cooling which solidifies tissues without ice formation). We are planning to perform vitrification by means of ultra-fast cooling using cold gas blown through the whole body;
2. Ultra-fast and even rewarming with the use of cryoprotectants with nanoparticles;
3. New nontoxic cryoprotectants based on inert gases.

4.3. Space Travel

Cryonics is our chance to get to remote planets and star systems. Human life will inevitably spread beyond the Earth to inhabit the space.
The CryoGen project has all chances to become a leading project which provides services for space anabiosis; soon our technologies can be used for space flights over long distances. So, the first step toward it has already been made.

4.4. Conclusion

Thus, maintaining the current pace of scientific and technological progress, the restoration of the brain and body of the cryopreserved person will become possible by the middle of the 21st century. Therefore, cryonics technologies give a real chance for a radical extension of people's lives.

In conditions of rapidly developing information space, the CryoGen project combines two new revolutionary convergent technologies: blockchain and cryonics.
The CryoGen project will accelerate the solution of these global problems by bringing together the most progressive scientists to develop new and improve existing technologies for a radical life extension.

5. ORIGINS AND DEVELOPMENT OF CRYOGEN

In 2014, the management of KrioRus, at the invitation of the Government of Switzerland, visited six cantons and presented its project to open the first cryonics centre in this progressive country with the aim of incorporating the company CryoGen under Swiss jurisdiction.

The Ministries of Economy of three cantons became interested in the possibility of building a cryonics centre in Switzerland and offered mutually beneficial terms of cooperation.

Today, we enter the last stage of coordination of the creation of a European cryonics provider headquartered in Switzerland, vital to the development of cryonics in Europe, along with DNA preservation, organ cryobanking, the inauguration of a genetic archive, and more.

In Switzerland, we are joined by many like-minded people and colleagues. We have thoroughly studied the commercial real estate market in Switzerland and plan to acquire the best price and quality location for a cryonics centre, for example, a decommissioned military base in the Alps. KrioRus owns several cryonics storage facilities in Russia, where we have mastered the installation and transfer of Dewars and cryostats (up to 1.8 tons in empty weight). In the same locations, we have completely established the entire process of cryonics storage for human and animal cryonics patients and DNA samples.

KrioRus is the only company outside of the United States that produces cryostats of large volume for the preservation of patients' bodies. We are proud of our own Anabiosis.
For the preservation and storage of small animals, it is possible to use industrially produced dewars of small volume, but for the preservation of the human body it is necessary to use special design dewars that are produced only in the USA and by KrioRus.

We have representative offices in: USA (New York), Italy (Mirandola), Russia (St. Petersburg) Our company has arrangements with funerary service providers in Riga (Latvia), London (UK), Kiev (Ukraine), Chelyabinsk, Izhevsk, doctors and hospitals in Minsk (Republic of Belarus), Volgograd, Samara and other cities.

We have mastered all cryonics technologies and are successfully practicing them. Cryonicists from around the world flock to Moscow in order to come and study at KrioRus.
KrioRus is the only cryonics provider in Europe and Asia that has its own cryonics storage for conservation and long-term storage of cryonics patients, with specialized scientific laboratories and qualified staff.

There are 55 cryonics patients and 21 preserved animals in cryonics storage at KrioRus. To date, more than 400 contracts have been concluded for the future cryopreservation of humans and animals. By 2017, more than 400 contracts have been concluded for the future cryoconservation of humans and animals.

6. JUSTIFICATION OF TOKEN

Cryotoken is a utility token, accepted for purchase of all available services at CryoGen. Each Cryotoken is equivalent to one U.S. dollar (ICO price).

The number of emissioned tokens is based on amount of raised funds during PRE-ICO and ICO stages. Token CryoGen is the first token of Science token family, which implies the possibility of acquiring Science Shares.

CryoMarket

Currently, Cryotokens may be redeemed for the purchase of:

DNA preservation

1 000 CRYO

Transportation

3 000 - 10 000 CRYO

Neuropreservation

18 000 CRYO

Fullbody cryopreservation

36 000 CRYO

Animal cryopreservation

10 000 – 36 000 CRYO

Standby services

50 000 – 100 000 CRYO

Science Shares

Buy

POTENTIAL OF CRYO TOKEN:

1. Limited issue
The number of tokens is limited. No further token will be issued.

2. Payment with CRYO only
Payments for some cryonics services, digitization services, science shares for participation in research or purchases on cryonics market will be possible only with tokens.

3. Affiliate network
As the project develops, we will connect all new companies to our network, which means that it will be possible to pay for tokens from outside CryoGen.

4. Benefits of payment with tokens
The cost of any services token will be significantly lower than the payment by conventional currency.

5. Instalment plan
There is no need to purchase a complete product all at once, the purchase will be possible by accumulating a certain number of tokens within a set time frame.

6. Ease of acquisition
Any new user will be able to purchase tokens directly online at the current exchange rate.

7. OPPORTUNITIES FOR FINANCIAL PARTICIPATION

Participation in ICO CryoGen will remain open throughout all three stages:

1. Private Placement, during which, interested parties can purchase the service of the company under special conditions. Dates: October 17 – November 9. Interested parties should email cryogenico2017@gmail.com or fill out an application through the personal account of the user.

Interested parties should email cryogenico2017@gmail.com or fill out an application through the personal account of the user on http://cryogen.me.

2. Pre-ICO, during which tokens will be provided with a 30% discount. The pre-ICO begins on November 7, 2017 to November 21, 2017. 500,000 tokens will be issued at this stage. We will increase the number of tokens for sale in case of increased interest.

3. ICO-stage, during which the price of tokens will vary from 85% to 100% of cover price. The exact dates are to be determined by the results of pre-ICO sales in December or January.

8. LEGAL

The CryoGen project team is committed to the creation of an unprecedented value and progress for the cryonics. We wish everyone who wishes to take part in our innovative project, reasonable freedom from doubt that their investments are secure.

Tokens CRYO is issued by the nonprofit organization CryoGen, which will operate under the jurisdiction of Switzerland and will be managed by the world renown cryonics provider, KrioRus. A principle activity of KrioRus is the practice of cryonics for cryonics patients, as well as scientific research and development in the field of natural and technical sciences. KrioRus provides clients with cryonics storage of tissues, organs, DNA, humans and animals, as well as conducting research in the field of reversible cryonics.

A principal activity of KrioRus is research and development in the field of natural and technical sciences.

The main activity of KrioRus LLC is research and development in the field of natural and technical sciences. The company has been providing cryopreservation services for people and animals for customers around the world for 12 years.

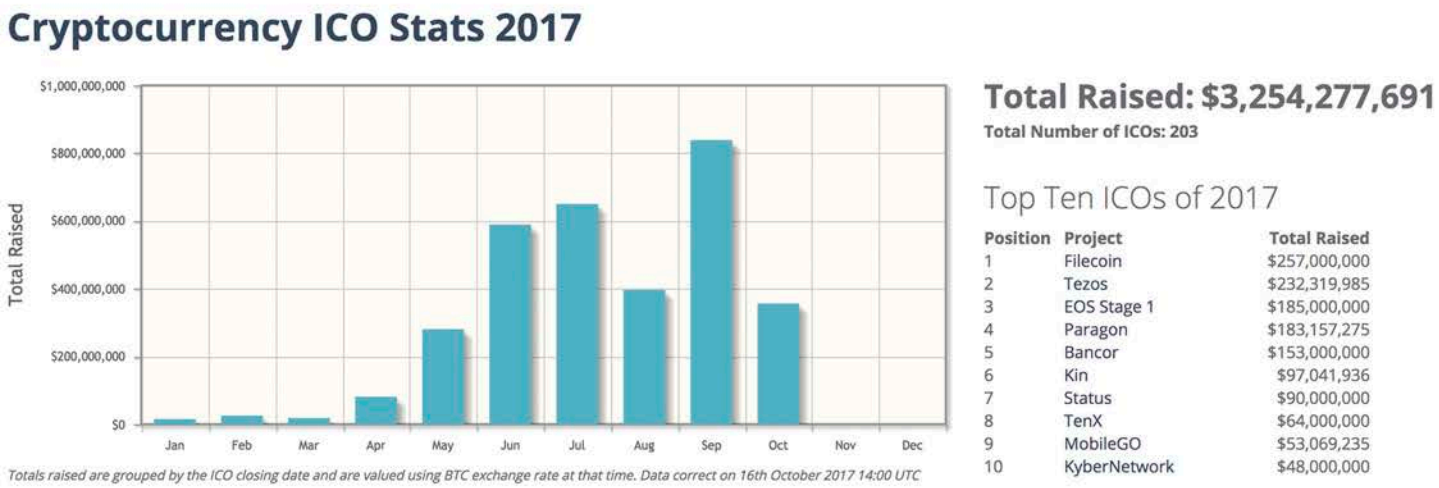
The founders of KrioRus LLC are individuals whose ownership is established under tax records of the Russian Federation.

The nonprofit Swiss organization CryoGen has an agreement with KrioRus LLC that CryoGen pays out ICO-reserved funds on behalf of Cryotoken bearers for cryogenic storage in a facility in Switzerland, and performs research towards reversible freezing for Cryotokens bearers.

9. JUSTIFICATION OF THE BUSINESS MODEL

9.1. ICO Market and Industry

In June 2017, the total amount of funds raised under the ICO exceeded the amount that blockchain start-ups have got from venture capital companies over the previous 12 months. Since April 2017, the ICO market is growing by more than 100% every month, and in July 30 or more ICOs have been launched.



Source: https://www.coinschedule.com/stats.php

The total market capitalization of the crypto currency increased almost 6 times from $ 20 billion to $ 116 billion in 4 months, the peak of growth occurred in June. For comparison, there is a graph for the 8-year period from the time of the bitcoin launch to the point when the market capitalization reached $ 15 billion.

Source: http://coinmarketcap.com/charts/

Throughout the world, more than 20 million people die of incurable diseases every year. But everyone more fortunate than that is doomed to die from old age. Using the results of scientific research on the life extension and our own experimental development, we can give everyone a chance to preserve their body at extremely low temperatures until the time when medicine makes a breakthrough in relation to aging and can cure premature aging and any diseases.

9.2. Prerequisites for growth in demand

Nowadays, people and the market are ready to accept cryonics. Increasing popularity of cryonics is promoted by scientific and technological progress and the Internet. Our potential customers like to stay abreast of the latest research in the field of cryobiology, organ cultivation, prosthetics, nanorobots, etc. Almost every month, new studies appear that one way or another reinforce the very concept of cryonics.

The desire for longevity motivates ongoing scientific discovery and development in the technological sector, inspiring in the masses, a deeper understanding of the value of life, and of what should be done now that we can. According to the Levada Center, more than 18% of respondents indeed "want to live forever".

These considerations are confirmed by the stable hyperbolic growth in the number of cryonics contracts (taking into account the contracts concluded for the future cryopreservation), which KrioRus demonstrates.

9.3. Development of cryonics in the world

Cryonics is a growing industry. Before the inception of KrioRus 11 years ago, the United States was the unchallenged leader in cryonics in the world. Since the 1970s, two large organizations, the Alcor Life Extension Foundation and the Cryonics Institute, sprang up. But with the advent of KrioRus, the monopoly has been broken, and in the last few years, new cryonics providers have taken root not only in the US but in Australia and China. In Europe and Eurasia KrioRus is the only cryonics provider with its own cryonics repository.

9.4. Why Switzerland?

In Europe, cryonics is familiar even despite the absence of any European cryonics providers. There is a tremendous unmet demand. 25% of our contracts were concluded with clients from Europe. Switzerland is situated in the centre of Europe and has no prohibition on euthanasia, thus making possible the best quality cryonics services at the moment.

The inception of cryopreservation in Switzerland will resolve the doubts of many potential customers who do not want to be cryopreserved in Russia or on another continent (USA).

9.5. Technical storage volumes

KrioRus is capable to cryopreserve the minimum of 300 full body patients and more than 500 neuropreserved patients annually.

Developing the CryoGen project we will scale to increase our capability per 1,000 full body patients annually. Thus,in 5 years, we'll be able to save more than 5000 patients annually. And the same number of neuropreserved patients.

As the demand for cryonics services increases, we will increase the production of fullbody cryostats, depending on the real need. In the near future, we are planning to hold negotiations with a new potential cryostat manufacturer for KrioRus

10. ROAD MAP

2018

• The opening of non-profit organization CryoGen under Swiss jurisdiction.
• Purchase of two adjacent building in Tver for the new cryonics centre in Russia.
• Completion of the reconstruction project of Building 1.
• Renovation of building 2 as a location for a palliative care centre that will serve anyone who needs of ongoing pain management, including the dying with cryonics services, pre-cryo hospice palliative care centre and cryobiological laboratories.
• The inception of mass-scale PR company in Russia and Eurasia, for the build-up to the occasion of the opening of a large cryonics centre in Russia offering the highest quality cryonics.
• Expansion of laboratory staff.
• Testing different nanoparticles in order to determine the most cost-effective option with all of the required properties. (Currently available methods are exorbitant, even as much as $100,000 for just one experiment).
• Reproduction of the basic experiment on reversible freezing of a fragment of the pig's heart with nanoparticle perfusion, and the creation of a detailed research plan on reversible freezing of animal organs with the involvement of leading scientists around the world.
• Real estate search for suitable premises for the planned Swiss cryogenic storage facility.
• Buying a suitable building or empty plot in Switzerland.
• Cooperation with Swiss euthanasia-providing organizations in order to provide the best quality cryopreservation for our clients from Europe and from the whole world.
• Completion of the project for the construction of a Swiss cryogenic storage facility or the reconstruction of a building for it.

2019

• The opening of the palliative care centre in Building 2, will facilitate amortization in the recovery of investments in Tver.
• Completion of renovation for the Tver Cryonics Center building with a smart home system.
• Construction of anti-ageing medical centre in the Tver Cryonics Center building.
• The inception of a large PR company in Europe and Asia to attract customers to the Swiss cryogenic storage facility with the promotion of 2 major conferences of cryonics supporters in Europe.
• Application for the first R&D grants for the reversible freezing of fabrics and small samples in Europe and in Russia.
• Massive R&D on reversible cryopreservation of animal organs under nanoparticle perfusion, plus other related experiments.
• Upon the completion of construction for the Swiss cryonics storage facility, full-scale service will begin.
• Modernization of the Dewar manufacturing facility to increase production, and sales to emerging cryonics companies in Asia, South America and Africa.

2020

• The Tver Cryonics Center having recovered all expenses of real estate purchase and renovation will begin showing a profit. Likewise, the palliative care centre, because hospice is profitable with quick returns, in Russia.
• The Swiss cryonics storage facility will become the centre of European cryonics, and cryonics legislation will advance in Switzerland.
• The commercial euthanasia technology for "mercy freezing" will be refined and applied. Contracts sales will increase.
• The anti-ageing centre will begin receiving grants for the study of ageing and expand activities. Clients of the anti-ageing centre eventually contract as CryoGen patients.
• Reliable and safe reversible cryopreservation of the first organ of a large animal such as a pig will be achieved.

2021

• With the Tver Cryonics Center and the Swiss cryonics storage facility operating at full capacity, cryonics will develop in other regions, so that there will arise a need to expand the cryonics storage network.
• With the technology of reliable and safe reversible cryopreservation of most organs of various large animals achieved.
• Experiments will begin on cadaverous human organs.

2022

• The technology of reversible cryopreservation of the first human organ will be obtained.
• Initiation of clinical trials.

11. DISTRIBUTION OF FUNDS

• Building of cryonics centres and international scaling of CryoGen: 30%
• Technology development: 25%
• Marketing, PR/GR: 20%
• Project management (including legal and administrative expenses): 15%
• Strategic partners: 5%
• Reserve fund: 5%

12. TEAM

Valeria Udalova

Co-founder and CEO of KrioRus, the Russian cryonics company
https://www.linkedin.com/in/valerija-pride-13a22a5a/
https://www.facebook.com/valerija.pride
Valeria graduated from the Moscow Institute of Physics and Technology, the most prestigious university in the USSR. She has Physics and Marketing degrees. Valeria was at the very begging of cryonics in Russia. Valeria is a Co-founder of KrioRus. She has been a CEO of the company for 8 years. In many ways due to her work and persistence, a whole cryonics industry has been created in Russia and KrioRus demonstrates extremely rapid growth rate. Valeria is one of the leaders of Russian transhumanists. She is a popularizer of cryonics.

Yuri Pichugin, PhD (USA)

Director of Science
https://www.facebook.com/pichugin.yuri
Yuri was born in Siberia, but left for St. Petersburg after graduating from the institute to create the technology of anabiosis (cryonics) and has since worked in the field of cryobiology. He has 40 years of priceless international experience in the field of cryobiology. Yuri has created a technology of vitrification for the Cryonics Institute, the legendary cryonics organization in the USA. He has a lot of know-how, which needs to be implemented as soon as possible. He has written more than 80 scientific papers.

Igor Artyukhov

Research and Development Director
https://www.facebook.com/igor.artyuhov
Igor is a Co-founder of KrioRus. He is a biophysicist, cryobiologist, futurist and active evangelist of new technologies. It seems that Igor was the first professor of nanotechnology in Russia. He is one of the founders of the Russian transhumanist movement. In 2003, Igor performed the cryopreservation of the very first Russian cryonics patient. He is the author of significant scientific works and designs of many special devices for cryonics. Employees in the laboratory under his supervision have cooled animals to +2 C for several hours and then rewarmed them without any consequences. He has been popularizing breakthrough technologies on the Internet since the days of FidoNet.

Yuri Matveev

Surgeon and Perfusionist
He has a unique experience in the field of cryonics. Yuri has performed numerous cryopreservations of people and animals, including the cryopreservation of a chinchilla. He is constantly inventing new methods of perfusion and various devices for this. Yuri also works in the genetics laboratory of Moscow Regional Research and Clinical Institute (MONIKI). A born teacher with an amazing sense of humour, he trains new cryonics specialists. Hobby: struggle against ageing and gerontology.

Elena Serebryannikova (Switzerland)

Financial advisor
https://www.facebook.com/elena.serebryannikova
Elena has a Marketing degree and has worked as a Deputy Director of the Swiss financial company Crédit Privé de Placement et d'Intermediation" (https://www.creditpriv.ch/home-eng). for more than 10 years. She works with large clients. Elena knows how to sell cryonics services perfectly well. She supports our project in Switzerland at the cantonal and federal levels.

Lev Leiman

Ideas Seller, Marketer, IT Developer, Blockchain Analyst
Lev has an Energy Engineering degree. He worked on the development of the Smart Home project at the Military University of Bundeswehr in Germany. He returned to Russia to work at INSET as a Leading Specialist in the development of the Innovation Department of the company. In January 2016, he took up entrepreneurial activities related to the development of anti-crisis solutions. Lev participated in the SandCoin project as the Head Marketer. He developed and implemented the advertising strategy of the project. Lev is a real expert of the cryptocurrency market and an analyst of blockchain technology.

Tatiana Shifrina

Chief Design Officer
https://www.facebook.com/shifrinat
Owner and director of the communication group Brand's Territory Group in 2004. She works with leading enterprises in Russia and Europe. Tatiana has been awarded for the best advertising in the field of energy in Europe, got the gold medal at Bytchimexpo Exhibition, etc. She is very dedicated to our project. Tatiana has been engaged in publishing of Gentl's, a premium magazine for investors, for 5 years. She likes publishing articles on new technologies, cryonics and interviewing famous people.

Denis Rysev

Technical Expert of the Project
https://www.facebook.com/rysev
Denis is a dedicated supporter of life extension. He was a team member of the well-known ICO SONM project. The project raised 42 million dollars. He is also a Technical Director of RuNeuro, a project of the development of the neurocomputer interface, a blockchain expert and the developer of computer games. Denis is a Delegate of the VOICE blockchain project.

13. ADVISORY BOARD

Alberto Sarmentero

https://www.facebook.com/albert.sarbergman
Alberto is a Bioengineer and the Head of the GIBiomed company, Madrid, Spain. GIBiomed is working on the invention, design and release of new devices in the field of biomedical engineering. The company has developed thermoplastic cryocapsules for organs. It cools, transports and cryopreserves the organs, ensuring the best preservation. The company is also developing capsules

Zamir Akimov

https://www.facebook.com/zamirakimov
Zamir is a Neuromarketer, a specialist in the field of blockchain, the Head of the NeuroDAO cryptofund and the Vice President of RACIB (Russian Association of Cryptocurrency and Blockchain).

Ilya Svirin

https://www.facebook.com/profile.php?id=100009292827441
Ilya is an expert in the field of blockchain and smart contract, the Founder and the Head of the Nordavind Group of Companies, software development for security systems, video surveillance systems and intelligent devices for monitoring human health and diagnosing diseases at an early stage. He is a Co-founder of the PROVER.io project, the blockchain technology for confirmation of the authenticity of video materials.

Kim, C-Yoon (Kyung Sul)

C-Yoon is a Biotechnologist, Neurophysiologist and a Research Professor at the Biomedical Research Center at Konkuk University (Republic of Korea). C-Yoon is a Specialist in the field of splicing the spinal cord of mice during transplantation.
C-Yoon's awards:
- 2016 Korean Association for Laboratory Livestock (KALAS) International Award;
- 2014 Chinese Association of Laboratory Animals (CALAS), International Award for Young Scientists.

14. ARTICLES AND QUOTATIONS

Persistence of Long-Term Memory in Vitrified and Revived Caenorhabditis elegans
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Aldehyde-stabilized cryopreservation
McIntyre RL, Fahy GM.
Cryobiology. 2015 Dec;71(3):448-58. doi: 10.1016/j.cryobiol.2015.09.003. Epub 2015 Sep 25.
https://www.ncbi.nlm.nih.gov/pubmed/26408851

Scientific justification of cryonics practice.
Rejuvenation Res. 2008 Apr;11(2):493-503. doi: 10.1089/rej.2008.0661.
Best BP1.
https://www.ncbi.nlm.nih.gov/pubmed/18321197

Cryopreservation of rat hippocampal slices by vitrification
Yuri Pichugin, Gregory M. Fahy, Robert Morin
Department of Pathology, Harbor-UCLA Research and Education Institute, 1000 West Carson Street, Torrance, CA 90502, USA b 21st Century Medicine, Inc., 10844 Edison Court, Rancho Cucamonga, CA 91730, USA
Cryobiology 52 (2006) 228–240.
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.505.4081&rep=rep1&type=pdf

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http://www.evidencebasedcryonics.org/scientists-open-letter-on-cryonics/

http://www.bbc.co.uk/programmes/p04q2p9p

http://www.parismatch.com/Actu/Environnement/Danila-Medvedev-veut-ressusciter-les-morts-579705

https://www.ft.com/content/d634e198-a435-11e5-873f-68411a84f346

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15. CONCLUSION

Blockchain technology, which gave rise to a system of p2p mutual settlements, enables super-fast development of science, medicine and technology due to a much easier way of funding. Today, each of us can take part in the evolution that is taking place right now. It will give a chance to achieve even the most ambitious goals.

We are sure that today achievements in neuronal cryobiology and cryogenic and medical technology will make possible to gain a 100% survival rate of brain cells. However, these achievements are now ahead of the modern imperfect state of the cryonics technologies. However, only cryonics can give a chance for physical immortality. We do not want to embellish anything: we are talking about the chance as a probable opportunity and not as a guarantee. But now it is possible only by suspension of the processes of dying of the human body legally declared dead and body storage in liquid nitrogen.

Although modern cryobiology is still on the verge of a successful cryopreservation of organs of people and animals, it does not affect negatively the possibility of restoring frozen bodies of people, because the chances of repairing all damage with the help of molecular engineering in the future are high (one of the options). At least, the leading experts in the field of nanotechnology, Eric Drexler, Marvin Minsky, Ralph Merkle, are confident of this and have signed up for the cryopreservation.

However, we must do everything to create and apply more and more perfect cryonics technologies and constantly increase the chances of reviving the cryopreserved patients.

16. DISCLAIMER

The purpose of this document is to present the CryoGen project to potential token holders due to the forthcoming launch of the Cryotoken*. The information set out below cannot be exhaustive and does not imply any elements of a contractual relationship. The sole purpose of this document is to provide the necessary and reasonable information to potential token holders so that they can determine whether a thorough analysis is needed to acquire Cryotokens. Nothing in this document can be considered an issue prospectus or an application for investment, nor does it relate to an offer to purchase any securities in any jurisdiction. This document is not drawn up in accordance with the laws or regulations of any jurisdiction that are intended to protect investors and is not subject to these laws. Some statements, estimates and financial information contained in the White Paper represent information concerning the future. Such forecasts are associated with known and unknown risks and uncertainties that could cause actual events or results to differ considerably from the estimates and results implied or expressed in forecast statements. Russian and English versions of the White Paper are the primary official sources of information about the launch of the CryoGen project. The information contained herein may be translated from time to time into other languages or used in a written or oral communication with existing and potential customers, partners, etc. Due to such translation or communication, some of the information contained in this document may be lost or distorted. The accuracy of such alternative messages cannot be guaranteed. In case of any conflicts or inconsistencies arising between translations or messages and this document in Russian, the provisions of this document in Russian shall prevail.

* Cryotoken does not grant potential holders the right to a stake in KrioRus or in any future ventures created under the CryoGen project; this is an exceptionally full-featured utility-token, that is, a cryptocurrency/accounting unit of services that investors or project participants can purchase on special terms.