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CRYONICS ON THE WAY TO RAISING THE DEAD USING NANOTECHNOLOGY

Sai Srinivas Vellela[1], Khader Basha Sk[2], Venkateswara Reddy B[3]

[1,2,3]Assistant Professor, Dept. of CSE, Chalapathi Institute of Technology, Guntur, AP, India

ABSTRACT

Today technology plays a vital role in every aspect of life. Increasing standards in technology in many fields, has taken man today to high esteem. But the present available technologies are unable to interact with the atoms, such a minute particles Hence Nanotechnology has been developing. Nanotechnology is nothing but a technology which uses atoms with a view to creating a desired product. It has wider applications in all the fields. The important application is Cryonics. Cryonics is nothing but an attempt of raising the dead - making them alive. First we preserve the body then by using molecular machines based nanotechnology we could revive the patients by repairing damaged cells. In this technical paper we would like to discuss cryonics, how the process of cryonics goes on and why nanotechnology is being used and description of molecular machines which has the capability of repairing damaged cells. Therefore Cryonics is an area in which most of the work is to be done in future.

Keywords – Cryonics, Dead, Nanotechnology.

1. INTRODUCTION

Today technology plays a vital role in every aspect of life. Increasing standards in technology in many fields particularly in medicine, has taken man today to high esteem. Nanotechnology is a new technology that is knocking at the doors. This technology uses atoms with a view to creating desired product. The term nanotechnology has been a combination of two terms, nano"and technology". The term nano is derived from a Greek word "nanos" which means "dwarf". Thus nanotechnology is dwarf technology. A nanometer is one billionth of a meter. Our President A. P. J. Abdul Kalam being a scientist made a note about this technology that nanotechnology would give us an opportunity, if we take appropriate and timely action to become one of the important technological nations in the world. The main application of nanotechnology is cryonics. Cryonics is nothing but an attempt of raising the dead. Cryonics is not a widespread medical practice and viewed with skepticism by most scientists and doctors today.

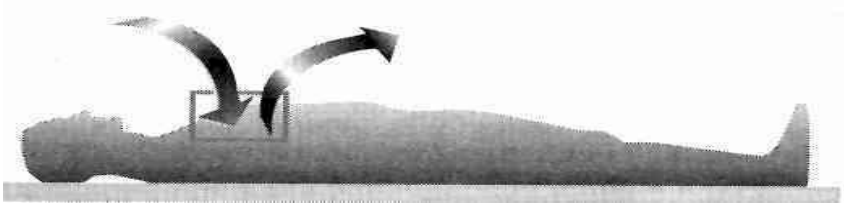
2. HISTORY

The first mention of nanotechnology occurred in a talk given by Richard Feynman in 1959, entitled There's plenty of Room at the Bottom. Historically cryonics began in 1962 with the publication of "The prospect of immortality" referred by Robert Ettinger, a founder and the first president of the cryonics institute. During 1980's the extent of the damage from freezing process became much clearer and better known, when the emphasis of the movement began to shift to the capabilities of nanotechnology. Alcor Life Extension Foundation currently preserves about 70 human bodies and heads in Scottsdale, Arizona and the cryonics institute has about the same number of cryonic patients in its Clinton Township, Michigan facility.

3. CRYONICS

The word "cryonics" is the practice of freezing a dead body in hopes of someday reviving it. A Cryonics is the practice of cooling people immediately after death to the point where molecular physical decay completely stops, in the expectation that scientific and medical procedures currently being developed will be able to revive them and restore them to good health later. A patient held in such a state is said to be in 'cryonic suspension. **Cryonics** is the practice of cryopreserving humans and pets (who have recently become legally dead) until the cryopreservation damage can be reversed and the cause of the fatal disease can be cured (including the disease known as aging). However, there is a high representation of scientists among cryonicists. Support for cryonics is based on controversial projections of future technologies and of their ability to enable molecular-level repair of tissues and organs.

Patient declared legally dead-On way to Alcor in Arizona, blood circulation is maintained and patient is injected with medicine to minimize problems with frozen tissue. Cooling of body begun. (If body needs to be flown, blood is replaced with organ preservatives.)



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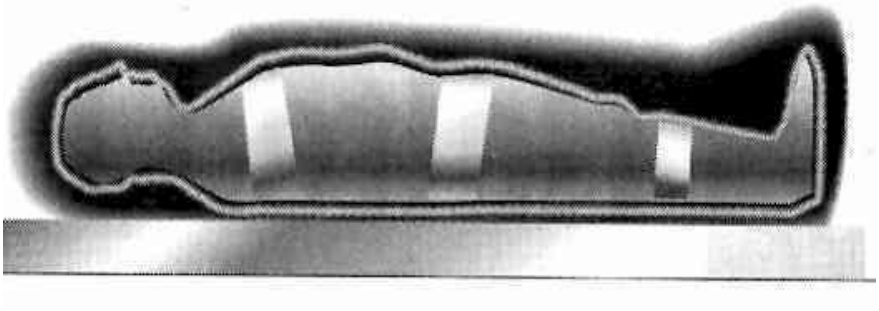
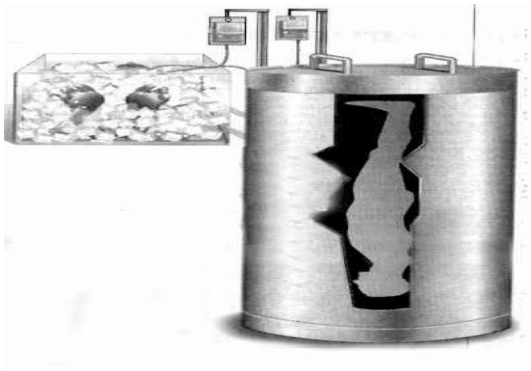
At Alcor the body is cooled to 5 degrees- Chest opened, blood is replaced with a solution (glycerol, water, other chemicals) that enters the tissues, pushing out water to reduce ice formation. In 2 to 4 hours, 60% or more of body water is replaced by glycerol.



Freezing the body- The patient is placed in cold silicone oil, chilling the body to -79°C. Then it's moved to an aluminium pod and slowly cooled over 5 days in liquid nitrogen to -196°C (minus 320° Fahrenheit), then stored.



Actual process starts- After preserving the body for some days, they will start the surgery. As a part of it, they will apply some chemicals like glycerol and some advanced chemicals to activate the cells of the body. By doing so, 0.2% of the cells in the body will be activated. After that they will preserve the body for future applications. The crayonists strongly believe that future medicines in 21st century will be useful to rapidly increase those cells that will help to retrieve the dead person back.

Storage vessel- Stainless-steel vats formed into a large thermos-bottle-like container. Vat for up to four bodies weighs about a ton; stands 9 feet tall. Transtime "recommends" that people provide a minimum of $150,000 for whole-body suspension. Part of this sum pays for the initial costs of the suspension. The balance is placed in a trust fund, with the income used to pay the continued cost of maintaining you in suspension. Transtime can do neurosuspensions but does not promote the option. Transtime also charges a yearly fee of $96 for membership, with the price halved to $48 for other family members. The Cryonics Institute in Clinton Township, Michigan, charges $28,000 for a full-body suspension, along with a one-time payment of $1,250. The Cryonics Institute does not do neurosuspension. About 90 people in the United Stated are already in suspension, with hundreds more signed on for the service. Probably the most famous cryopreserved patient is Ted WilliamsA cryopreserved person is sometimes whimsically called a corpsicle (a portmanteau of "corpse" and "popsicle"). This term was first used by science fiction author Larry Niven, who credits its formulation to Obstacles to success

Revival process- Critics have often quipped that it is easier to revive a corpse than a cryonically frozen body. Many cryonicists might actually agree with this, provided that the "corpse" were fresh, but they would argue that such a "corpse" may actually be biologically alive, under optimal conditions. A declaration of legal death does not mean that life has suddenly ended—death is a gradual process, not a sudden event. Rather, legal death is a declaration by medical personnel that there is nothing more they can do to save the patient. But if the body is clearly biologically dead, having been sitting at room temperature for a period of time, or having been traditionally embalmed, then cryonicists would hold that such a body is far less revivable than a cryonically preserved patient, because any process of resuscitation will depend on the quality of the structural and molecular preservation of the brain.

Financial Issues- Cryopreservation arrangements can be expensive, currently ranging from $28,000 at the Cryonics Institute to $150,000 at Alcor and the American Cryonics Society. The biggest drawback to current vitrification practice is a costs issue. Because the most cost-effective means of storing a cryopreserved person is in liquid nitrogen, fracturing of the brain occurs, a result of thermal stresses that develop when cooling from −130°C to −196°C (the temperature of liquid nitrogen). actually quite affordable for the vast majority of those in the industrialized world who really make arrangements while still young.

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Court Rules against Keeping- The Conseil d'Etat ruled cryonics - stopping physical decay after death in the hope of future revival - is illegal. The court said relatives have two choices over what to do with dead bodies - burial or cremation. It said relatives can scatter ashes after cremation, but they have to bury bodies in a cemetery or in a tomb on private property after gaining special permissionant it, especially if they make arrangements while still young.

Why only nanotechnology is used in cryonics ?

Biological molecules and systems have a number of attributes that make them highly suitable for nanotechnology applications. Remote control of DNA has proved that electronics can interact with biology. Gap between electronics and biology is now closing. The key to cryonics' eventual success is nanotechnology, manipulating materials on an atomic or molecular scale, according to most techies who are interested in cryonic suspension. "Current medical science does not have the tools to fix damage that occurs at the cellular and molecular level, and damage to these systems is the cause of vast majority of fatal illnesses." Nanotechnology is the ultimate miniaturization can achieve. A nanometer is equivalent to the width of six bonded carbon items. A DNA molecule is 2.5nm wide. Cryonics basically deals with cells, these cells are in the order of nanometers. At present there is no other technology which deals with such minute cells. Only nanotechnology can have the ability to deal with cells. Normally fatal accidents could be walked away from, thanks to range of safety devices possible only with nanotechnology. Viruses, prions, parasites and bacteria continue to mutate and produce new diseases. Our natural immune system may, or may not, handle. In theory, a nano 'cell sentinel' could make our body immune to any present or future infectious disease. Fracturing is a special concern for new vitrification protocol brought online by Alcor for neuro patients. If advanced nanotechnology is available for patient recovery, then fracturing probably causes little information loss. Fracturing commits cryopatient to the need for molecular repair at cryogenic temperature a highly specialized and advanced form of nanotechnology. Whereas unfractured patients may be able to benefit sooner from simple forms of nanotechnology developed for more main stream medical applications. Damaged caused by freezing & fracturing is thought to be potentially repairable in future using nanotechnology which will enable manipulation of matter at the molecular level.

How nanotechnology is used in cryonics?

Molecular Machines could revive patients by repairing damaged cells but for making those cell repair machines, we first need to build a molecular assembler.It is quite possible to adequately model the behaviour of molecular machines that satisfy two constraints.

- They are built from parts that are so stable that small errors in the empirical force fields don't affect the shape or stability of the parts.
- The synthesis of parts is done by using positionally controlled reactions, where the actual chemical reactions involve a relatively small number of atoms.

4. ASSEMBLER MADE USING CURRENT METHODS

The fundamental purpose of an assembler is to position atoms. Robotic arms are other positioning devices are basically mechanical in nature, and will allow us to position molecular parts during the assembly process. Molecular mechanics provides us with an excellent tool for modeling the behaviour of such devices. The second requirement is the ability to make and break bonds at specific sites. While molecular mechanics provides an excellent tool for telling us where the tip of the assembler arm is located, current force fields are not adequate to model the specific chemical reactions that must then take place at the tip/work piece interface involved in building an atomically precise part. For this higher order ab initio calculations are sufficient

The methods of computational chemistry available today allow us to model a wide range of molecular machine's with an accuracy sufficiently in many cases to determine how well they will work. involved. This is obviously unattractive for a device as complex as an assembler with its roughly one billion atoms. The software required to design and model complex molecular machine is either already available or can be readily develop over the next few years. The molecular compiler and other molecular CAD tools needed for this work can be implemented using generally understood techniques and methods from computer science. Using this approach it will be possible to substantially reduce the development time for complex molecular machines, including Drexler's assemblers.

Computational nano technology includes not only the tools and techniques required to model the proposed molecular machines it must also includes the tools required to specify such machine. Molecular machine proposal that would require million or even billions of atoms have been made. The total atom count of an assembler might be roughly a billion atoms. while commercially available molecular modeling packages provide facilities to specify arbitary structures it is usually necessary to point and click for each atom

5. FUTURE ENHANCEMENTS

with the knowledge of cryonics cryonists are preserving the brains of humans. We know that each person alive today was once a single cell, and a complete human being can be grown in the natural state.

Thus they believe that genetic programming of a single cell on the surface of that brain begins a process of growth and development that

6. CONCLUSION

With the implementation of Cryonics we can get back the life. But Cryonics is a area in which most of the work is to be done in future and till now mainly the concept of this area has been proposed. So the Scientists are not making long promises for the future of this Cryonics.

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