American Cryonics Society
P.O. Box 1509, Cupertino, California 95015

Consent for Cryopreservation

1. I, _____ (The Member), consent to transfer my human remains to the American Cryonics Society (ACS), authorize ACS, its agents, assistants, associates, personnel, employees, contractees, successors, volunteers, and designates to provide and perform the experimental procedure of post-mortem cryogenic temperature preservation ("cryopreservation" or "cryonic suspension" also) and care of my human bodily remains, in the hope that, at some future date, science, technology, and medicine will have advanced to the point of sufficiency where they would permit the restoration ("revival" also herein) of my life, identity, and health. I further affirm my desire to have the procedure of cryopreservation begun as soon as possible after the moment of my legal death, to limit the deterioration of my human bodily remains.

2. I also desire that the transfer of my human bodily remains should contribute to the scientific and medical research needed in order to prove and perfect the process of reversible cryopreservation of human beings.

3. I hereby authorize any procedures such as cardiopulmonary resuscitation, anesthesia, pathology, radiology, perfusion, blood transfusion, blood substitution, organ transplantation, transplantation of the central nervous system in whole or in part into a host body, cloning, augmented, tissue regeneration; repair, refabrication, and/or replacement of any body components including cells, tissues and organs; and/or any other ancillary procedures thought necessary during my cryopreservation, long-term cryogenic temperature preservation, maintained storage, and care and, if it occurs, my restoration to life, identity, and health.

4. I specifically authorize ACS, its agents, designates, successors, and assigns to attempt revival of my human bodily remains unless otherwise provided for in my Application for Suspension in participation with ACS when, in ACS's best judgment, it is determined that attempting revival is technically and fiscally possible and in my best interest(s).

   Should such attempt to revive me fail, I authorize and instruct ACS to return me to cryopreservation or use whatever alternative preservation technologies me continued hope for restoration to life, identity, and health.

5. I authorize ACS to do non-destructive testing on, and take non-vital samples from, my human bodily remains after legal death and/or cryopreservation and/or during my long-term cryogenic temperature preservation and care. It is understood that this testing shall be carried out to improve cryopreservation techniques, medical knowledge, and/or the understanding of the sciences including, but not limited to, that of cryobiology.

6. In the event that my cryopreservation must cease, I authorize and request that ACS undertake alternative methods for preservation of my human bodily remains, including, but not limited to, chemical preservation and conventional interment in permanent permafrost, or chemical preservation and entombment in a permanent permafrost region.

7. I understand and accept that cryopreservation is not consistent with contemporary medical practices nor with current mortuary practice. I understand that physicians, cryobiologists, and scientists in other disciplines have discounted and may discount any reasonable possibility that revival from a cryopreservation state will be successful. I also understand that the legal status and the tax status of entities and persons performing cryopreservations and that of those parties whose human bodily remains are cryopreserved (or are to be cryopreserved) are still being tested and clarified in the courts and in legislatures.

8. I understand and accept that:

   A. There are no guarantees that this procedure of cryopreservation will be successful in preserving my human bodily remains sufficiently well to permit me to be restored to life, identity, and health;

   B. due to the possibility of events beyond ACS's control, there are no guarantees that my human remains will ever be cryopreserved or will be kept in a state of cryogenic temperature preservation and care indefinitely, even if they are successfully cryopreserved initially;

   C. there are no guarantees that any attempt will ever be made to restore me to life, identity, and health, nor that any such attempt will be successful;

   D. ACS cannot and does not predict the possible legal, economic, and other changes or problems which might make cryopreservation, long-term cryogenic temperature preservation and care, or future restoration to life, identity, and health illegal or impractical;

   E. I am transferring my human bodily remains and personal funds for an experimental procedure for which there is no known probability of success. It is possible that this experimental procedure will benefit the advancement of knowledge generally, without specifically benefiting me;

   F. ACS is currently a nonprofit charitable corporation and has limited resources.

9. I understand and accept that the dying process and the process of cryopreservation will result in damage to my body on the molecular, cellular, tissue, and organ levels which is currently considered irreversible. I understood and acknowledge that the damage experienced with the existing cryopreservation techniques currently employed by my cryopreservation service provider (as such damage is currently understood) includes but is probably not limited to the following:

A. Ischemic Injury. Currently, cryopreservation procedures cannot begin in most cases until after the patient has been pronounced legally dead by a qualified medical person. In practice this means that the patient will frequently (although not always) experience an ante-mortem period of deep metabolic shock (inadequate blood flow: ischemia) which will be seriously injurious to most body organs, and especially to the brain.

This ante-mortar ischemic period can result in altered capillary permeability (injury to small blood vessels supplying body tissues), edema (fluid accumulation), and injury to vital organs.

Following cessation of heartbeat and breathing (clinical death criterion upon which legal death is usually based), there will likely be an interval lasting from minutes to hours (depending upon the specific individual circumstances) during which blood circulation will be absent or inadequate. Disruptions in cell and tissue functions and structures, which are by current medical criteria considered irreversible and which may remain irreversible, may occur during this interval despite ACS's and its cryopreservation service provider's best efforts to prevent, minimize, or reverse these insults.

Currently, the medically accepted limits for recovery of humans from circulatory arrest at normal body temperature and without neurological deficits are in the range of 4 minutes to 6 minutes. As it is practiced today, even under the best conditions, it is probable that the patient will experience an ischemic period of at least 6 to 10 minutes before stabilization procedures which are designed to halt or reverse ischemic injury can begin. Furthermore, the effectiveness of such stabilization procedures for any given patient is unknown. Injuries as a result of ischemia which are currently known to occur include (depending upon duration), but are probably not limited to:

a) clumping of the chromatin (genetic material) in the cell nucleus;

b) altered permeability of the capillaries in the body and in the blood-brain barrier, causing the leakage of blood plasma proteins, and resulting in tissue swelling when circulation is restored, thus interfering with distribution of cryoprotective drugs during perfusion;

c) free radical damage to the cell membrane and other cellular components;

d) influx of calcium into the cells resulting in the activation of phospholipases which degrade the cell membrane;

e) calcium precipitation in the mitochondria and swelling of the mitochondria;

f) release of toxic levels of neurotransmitters which exacerbate brain cell injury;

g) loss of critical balances and concentrations of cell biochemical such as ATP, sodium/potassium ratio, and Ph;

h) accumulation of injurious chemicals (lactic acid, xanthine oxidase, free iron, and others) which directly or indirectly injure the cell during ischemia and which can cause added injury when and if circulation is restored;

i) spasm of arteries and arterioles resulting in failed circulation when blood flow is restored, which can interfere with adequate distribution of cryoprotective chemical agents;

j) release of damaging lysosomal enzymes which can degrade or destroy cell structures;

k) clotting of blood, which interferes with restoration of circulation and distribution of adequate amounts of cryoprotective chemical agents.

B. Cryoprotectant Perfusion Damage. Even before freezing begins, cryoprotectants are, in most cases, delivered to the brain and other body organs in high concentrations. This process requires considerable time and imposes stresses and damages that may include:

a) osmotic opening of the blood-brain barrier (tearing of junctions between capillary cells);

b) likely washout of some protein from damaged or ruptured cells;

c) derangements of the levels of critical cell biochemical and electrolytes;

d) osmotic injury to tissue between regions which are well-perfused and those which may not perfuse well or as well (i.e. cells may swell and become "leaky" if they absorb water from poorly perfused or "dilute" adjacent areas);

e) damage to the fine structure of the cell membrane, such as the formation of blebs or blisters (separation of the membrane from the cytoplasm (cell substance)) and alterations in the arrangement of or loss of the proteins which are normally present in the cell membrane.

f) loosening of the chromatin structure (which contains DNA).

C. Biochemical/Biophysical Freezing Damage. The combination of cellular shrinkage, lowered temperature, and elevated concentrations of cryoprotective chemical agents such as glycerol may cause:

a) loss of lipids from the cell membrane. (In other words, the cell membrane may be disrupted and lose material);

b) loss of key membrane proteins responsible for regulating cell function and perhaps encoding memory;

c) damage to hydrophobic (water insoluble) membrane proteins;

d) formation of deleterious chemical bonds (most commonly disulfide bonds) between vital cell proteins or other cell molecules;

e) leakage of important electrolytes and other molecules into and out of bodily cells;

f) precipitation of some chemicals and proteins critical to cell function (i.e. some enzymes, structural proteins, and buffers);

g) release, during freezing, of destructive enzymes that can break down cell structure and that could therefore pose serious problems upon rewarming;

h) alteration of the arrangement of the lipids (fats) in the cell membrane during cooling and freezing such that the normal sheet-like structure of the membrane is reorganized into patches of tangled tubules, rendering the membrane nonfunctional and permeable (Hex II) reorganization.

D. Mechanical Freezing Injury. Several kinds of mechanical injury to tissues, as a result of ice formation, could occur, such as:

a) tissue level ripping, twisting, and fraying of the ripped ends of nerve tracts by the contraction of brain cells and by the push of extra cellular ice [creating debris-strewn gaps of perhaps 5 microns to 100 microns in width (similar kinds of damage can be expected in other organ systems as well, such as the disruptions of muscle fiber bundles, rupture of kidney tubules, etc.)];

b) disruption of the junctions between cells;

c) fracture and separation of fractured halves of cells, axons, dendrites, capillaries, and other brain elements by gaps in the millimeter range after the temperature drops below the glass transition point, (similar gross fractures in the millimeter range will occur in other body organs as well);

d) separation of capillaries from surrounding brain tissue;

e) physical disruption of the capillaries due to intracapillary ice formation (rupture of the capillary wall, tearing of the capillary endothelial cells, and stripping of the capillary endothelial cells from underlying capillary wall material), resulting in incompetent vessels;

f) stripping of myelin from axons, formation of gaps between the axon membrane and the myelin, unraveling of the myelin, and possible tearing of the axolemma, resulting in loss of intra-axonal material.

I understand and accept that if it is not possible to carry out cryoprotective perfusion, the damage described above as a result of the freezing process will be far more serious.

10. I understand and accept that if I am revived from cryopreservation I may experience a wide range of psychological and social problems and traumas as a result of the processes which preceded cryopreservation including but not limited to the disease process, the dying process, the cryopreservation procedure, and/or the revival and restoration procedures, including but not limited to:

A. complete or partial loss of memory, skills, and life experiences with consequent compromise of personal identity;

B. neurological deficits which may result in depersonalization, and/or emotional, physical, or social impediments;

C. loss of organ systems or body parts or substitution by prosthetic organ systems or body parts which results in psychological and/or emotional harm;

D. grief, loneliness, and/or social maladjustment as a result of separation from and/or permanent loss of loved ones, friends, and work or social position or status;

E. "culture shock," the inability to adapt to changed social and cultural circumstances as a result of temporal displacement while in cryogenic temperature care;

F. poverty, as a result of inability to adapt to earn a living, or as a consequence of physical or psychological deficits secondary to cryopreservation and revival;

G. loss of personal freedom and/or indebtedness, as a result of legal, social, and political conditions affecting persons recovered from cryopreservation;

H. exposure to legal action, embarrassment and/or loss of privacy as a result of technology incidental to revival which may allow access to personal memories;

I. inability to recover pre-suspension lifestyle due to cultural or societal changes;

J. discomfort due to displacement in time and cultural shock resulting from the progress of civilization and technology making past contributions to society obsolete, obscure, or unknown.

11. I understand and accept that my choice of cryopreservation may limit, interfere with, or exclude completely my participation in programs of experimental medical treatment/research. I understand that exclusion from such treatment/research programs may result from my refusal to consent to autopsy (since the requirements of medical research may necessitate a post-mortem examination), from the unwillingness of the treating institution to become involved with cryopreservation as a result of prejudice against cryopreservation, or from misunderstanding as to the nature and functions of cryopreservation, or from a resulting combination of some or all of these factors.

12. I understand and accept that my choice of cryopreservation currently precludes my participation as an organ donor (for purposes of transplantation or otherwise).

13. I understand and accept that my choice of cryopreservation may affect the type and extent of the medical care I receive. Some physicians or medical facilities may refuse to treat or admit me because of my arrangements for cryopreservation or may require that I be transferred to another, perhaps less suitable medical facility for medical treatment and medical care.

Further, I understand and accept that ACS, my Health Care Agent, or others empowered to do so may request the administering of life-sustaining medical treatment which may cause discomfort or extend the dying process so as to prolong my life long enough to facilitate my cryopreservation under good conditions (i.e. the use of "heroic" measures to sustain me in order to allow the cryopreservation team to arrive at my bedside).

Conversely, I also understand and accept that there may be some risk that some medical doctors, health care providers, physicians and medical facilities may refuse to respect my requests for termination of life-support technology or to grant me "no heroic measures" or "do not resuscitate" (i.e. dnr or no-code) status as a result of fear, ignorance, misunderstanding, or prejudice against cryopreservation.

14. If I have selected the neuro-cryopreservation option, I understand and accept the following:

A. Because my body below my neck may be discarded and destroyed during the neuro-cryopreservation process, I will necessarily have to rely upon the development of technologies capable of regeneration, regrowth, cloning and implantation, or grafting of my head or brain onto or into a host body. I understand and accept that such technologies may never be developed.

B. I may be revived using a prosthetic body or life support system which I may find undesirable, uncomfortable or unacceptable.

C. There may be loss of identity-critical structure and/or information when my body is discarded.

D. Technological advances required to revive and restore neuro-cryopreservation patients may take longer and/or cost more to develop than those required to revive and restore whole body cryopreservation patients, resulting in my remaining cryopreserved longer or failing to be revived from cryopreservation at all.

E. Social, political, and ethical objections to neurocryopreservation or to the technologies required to revive neuro-cryopreservation patients may result in problems which could delay my revival.

15. If I have selected the whole body cryopreservation option, I understand and accept the following:

A. I may be subjected to more injury from the cryopreservation process as a result of typically longer perfusion and cooling times than for neuro-cryopreservation patients.

B. Due to the greater costs and logistic difficulties associated with whole body cryopreservation, I may not remain cryopreserved under adverse political, economic, and/or social conditions that are outside the control of ACS.

C. Due to the possible need to repair/rejuvenate the entire cryopreserved body, it may require more resources to effect revival of whole body cryopreservation patients (as compared to neuro-cryopreserved patients) or it may cost more, which could delay or prevent my revival.

16. I understand and accept that, in the event that the ACS Board of Governors determines that my continued cryogenic care as a Whole Body Cryopreservation patient is impossible, I may he converted from whole body cryopreservation to neuro-cryopreservation as an emergency procedure if, and only if, no other alternative exists to continue my cryopreservation.

17. With full understanding of these conditions, I consent to the cryopreservation of my human bodily remains upon my death, and to the at-tempted restoration of myself to life, identity, and health in the future.

My signature below confirms my acknowledgment that:

1. 1 have read, understood, and consented to all of the foregoing provisions of this Consent for Cryopreservation document.

2. 1 am fully aware of and accept the risks, restrictions, releases, and limitations explained in this document.

3. Any and all questions that I have about the proposed research procedure(s) have been satisfactorily answered and explained to me by the officers, representatives, and/or other personnel of ACS.

4. 1 declare that the arrangement described herein, in conjunction with the Suspension Membership Applications and the Last Will and Testament for Human Remains and Authorization of Anatomical Donation documents, constitutes my last will and final wish as to the disposition of my human bodily remains after legal death.

5. 1 hereby give my authorization and consent for all of the above.

Signature of Member

Signature of responsible person if Member is unable to sign, incompetent, or an unemancipated minor.

State the name of the responsible person and relationship to Member

| --- | --- | --- |
| Date | Time (a.m./p.m.) | Town and State of Execution |

Two witnesses are required to sign in the presence of each other and The Member. At the time of signing, witnesses must not be relatives of The Member, health care providers, nor employees, or agents of ACS.

Your signature as a witness confirms your acknowledgment that:

I. You have witnessed the signature of The Member on this document and that The Member has represented to you that she/he understands and agrees to the purposes and terms of this document.

II. The Member has declared to you that cryopreservation is his/her last wish and clear directive as to the disposition of his/her person, body and remains upon and immediately following legal death.

Witnessed at the day and time of execution by the member being: _____(date) at this time: _____[a.m./p.m. (circle one)]

a. signature of Witness One: _____

printed name: _____

identification number and type of identification: _____

residential address: _____

b. signature of Witness Two: _____

printed name: _____

identification number and type of identification: _____

residential address: _____