

STORAGE OF BIOLOGICAL SYSTEMS (CELLS, TISSUES AND ORGANS) BY FREEZING WITHOUT CELL PERMEATING CRYOPROTECTANT

Published date: Feb. 9, 2019

Technology description

Extended Cryostorage of Cells, Tissues, and Organs The current invention developed at the University of Missouri presents media for cryopreserving tissues and organs at temperatures of mechanical freezers, such as -80 C to -20 C, for longer periods of time not achievable by current commercial technologies. The technology prevents the formation of large ice crystals that damage cells, tissues, and organs. The media is composed of mixture of antioxidants and cell membrane stabilizers, but does not contain cryoprotectants found in current organ and tissue cryopreservation technologies. Cryoprotectants are toxic to the long-term storage at -20 for most human cells, but until now, no one was able to develop a cryoprotectant-free solution. This preservation media innovation could revolutionize the transplantation industry by able to maintaining greater long-term viability of tissues and organs to allow more time to match donors to recipients. A major feature of this technology is its ability to prevent the freezing of intracellular fluids within tissues/organs and reduce the size of ice crystals formed outside of cells, thus reducing the mechanical stress of the ice crystals on the tissues/organs. Large, cell-damaging hexagonal ice crystals form when traditional cryopreservation media with permeating cryoprotectants are used in this process. The organ preservation market is forecasted to reach over \$370 million by 2023 and this technology that allows for extending the time organs can be preserved before transplantation could help accelerate the market's growth.

Application area

- Organ and tissue transplantation
- Cell, tissue, and organ storage

Advantages

- Enables cells, tissues, and organs to be stored in mechanical freezers (-20 to -80 C), eliminating the need for special freezing equipment and liquid nitrogen.

- Storage without the use of toxic cryoprotectants allows for longer term preservation of organs and tissues with greater viability for transplant.
- Could be one of the first technologies to successfully cryopreserve organs for transplantation.
- Creates more opportunity to match donors with recipient matches for organ transplantation.

Institution

[University of Missouri, Columbia](#)

Inventors

[Xu Han,](#)

[HENRY WHITE](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com