INTERNATIONAL PATENT APPLICATIONS:

Han X, Koulen P, Crister J. 2019. An Efficient Cryopreservation Device Preventing the Direct Contact Between Samples and Extracellular Ice, PCT/US2019/048986, published as WO2020047369A2. The USPTO written opinion is that all claims associated with the device are novel, involve inventive step, and industrially applicable. The PCT was nationalized in USA, EU, Japan, China, and India to cover the global corneal transplantation market in 2021.

Han X, White H, Koulen P. 2019. Improved Ultra-Fast Cooling System and Methods of Use, PCT/US2019/26162, published as WO2019195791A1. The USPTO written opinion was that all claims are novel, involve inventive step, and industrially applicable. The PCT was nationalized in USA, EU, Japan, China and India in 2020 to cover the global artificial tissue market.

Han X, White H, Koulen P. 2021. Efficient Cryopreservation Medium that Eliminates Need for Inclusion of a Cell Permeating Cryoprotectant and Methods of Use. USA 63/170,673. PCT filing pending. This is the first-in-class biocompatible cryopreservation technology for cells and tissues without the need for any cell permeating cryoprotectant or liquid nitrogen facilities.

Han X, Yuan Y, and Roberts R.M. 2017. Cryopreservation Medium and Method to Prevent Recrystallization, PCT/US2017/032606, published as WO 2017/197379 A1. It is being nationalized in USA, covering 30% of the global biobanking market. This gives the birth to the only cryopreservation medium product in the market that doesn’t require liquid nitrogen facilities for long-term storage of cells and tissues. It also reduces the use of cell permeating cryoprotectant for most cell and tissue types.

MANUSCRIPTS PUBLISHED IN PEER-REVIEWED JOURNALS:

As the corresponding author:


special issue: micro- and nano-technology in low temperature biology)

As first or co-author:


SELECTED CONFERENCE PRESENTATIONS & PROCEEDING PUBLICATIONS:

Han X., Biocompatible Cryopreservation of Blood, Corneas and Skin Grafts, European Society of Medicine (ESMED) Congress, 2021 (transferred to 2022 due to the conflict with a NIH study section)

Han X., Quillo A., Disruptive Cryopreservation Technology Platform. NIH Innovation Conference, 2020, Virtual

Quillo A., Han X., Disruptive Cryopreservation Technology Platform. Life Sciences Summit, 2020, New York, NY, Virtual

Obeiter S., Wiedmeyer C. E., Han X., Cytologic Evaluation of Diagnostic Fluids Frozen with Cryopreservation Media, Annual Meeting of the American College of Veterinary Pathologists, 2020, Virtual


Gooch S.A., Shoemake C. R., Wiedmeyer C. E., Han X., Cryopreservation of body cavity fluids for diagnostic cytology, National Veterinary Scholars Symposium August 2–4th, 2018, College Station, TX


Han X., Yuan Y., Roberts R M, Challenges facing the 21st century cryopreservation technology and our current and potential solutions with micro/nano technology, 7th World Congress of Biomechanics, July 6-11th, 2014, Boston, Massachusetts. (Also as invited Podium Speaker)


Han X, Gao D, Mechanism of intercellular ice propagation in plant tissues: experiments and theoretic analysis, Presented in the 42nd Annual Meeting of the Society for Cryobiology, July 24-27th, 2005, Minneapolis, MN.


