John M Baust et al., J Tissue Sci Eng 2016, 7:3 (Suppl)
http://dx.doi.org/10.4172/2157-7552.C1.027

Development of novel devices and strategies for the improved cryopreservation of cell products

John M Baust and **Kristi Snyder**
CPSI Biotech, USA

Cryopreservation (CP) plays an integral role in a variety of bioprocessing, biotechnology and medical applications. While a critical tool, CP protocols, approaches and technologies have evolved little over the last several decades. While the adoption of new approaches to CP has been slow, discoveries including molecular modulation and the development of new devices for improved sample freezing and thawing are providing new strategies for improving CP. To this end, we have developed a series of new devices and protocols to enable the rapid and controlled freezing (Smart Freeze) and thawing (SmartThaw). These systems are designed to improve sample viability and function post-thaw while reducing processing time and end-user variability. This presentation will discuss these new systems as well as the impact of molecular stress response and the apoptotic process on CP outcome. Data presented will include thermal profile, cell viability and molecular stress results from several cell systems including CHO, PC3, HUVEC and hMSCs. The results suggest that these systems enable more efficient, controllable sample processing in comparison to traditional methodologies. Importantly, these investigations are providing new technologies and directions, built on a cell/molecular foundation to help accelerate new research, technology and procedure development initiatives in which CP serves as an enabling component.

Biography

John M Baust (President of CPSI Biotech) is a recognized Innovator in Cryomedicine. His research has been instrumental in the advancement of the cryobiological sciences into the molecular era and is credited with the discovery of cryopreservation-induced delayed-onset cell death. He has published more than 100 peer-reviewed papers, reviews and chapters. Currently, he serves the Editorial Board of *Biopreservation and Biobanking*, Board of American College of Cryosurgery. He has completed his studies at Cornell University, Binghamton University and Harvard Medical School.

jmbaust@cpsibiotech.com

Notes: