Cryostorage and thawing temperatures critical to survival of bioengineered liver tissue

September 16 2016

A new study determined the optimal temperatures for cryostorage and thawing of bioengineered liver tissue to maximize its viability for use in a bioartificial liver device. The availability of on-demand liver samples for tissue engineering applications will require proven methods for cryopreservation of the engineered liver tissue for storage and transport and an effective thawing strategy, as described in an article published in *BioResearch Open Access*.

Peter Kilbride, John Morris, PhD, and coauthors from Asymptote Ltd., Cambridge, and ULC Institute for Liver and Digestive Health and Department of Surgery, Royal Free Hospital Campus, London, U.K., compared direct thawing from liquid nitrogen storage at -196oC to an interrupted storage approach in which the tissue was maintained at an intermediate temperature of -80oC, on dry ice, for one to several days before completely thawed. These two methods led to significantly different outcomes in terms of post-thaw tissue viability and function, as reported in the article "Impact of Storage at -80 C on Encapsulated Liver Spheroids After Liquid Nitrogen Storage."

"It is essential that bioengineered tissues and constructs for clinical therapy are not damaged or destroyed during the transport and/or storage process," says BioResearch Open Access Editor Jane Taylor, PhD, Edinburgh Medical School and Biomedical Sciences, University of Edinburgh, Scotland. "This article highlights some of the issues that need

to be considered for the transportation of alginate encapsulated liver spheroids for use in a bioartificial liver device."

More information: Peter Kilbride et al. Impact of Storage at −80°C on Encapsulated Liver Spheroids After Liquid Nitrogen Storage, *BioResearch Open Access* (2016). DOI: 10.1089/biores.2016.0017