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BioCoR: Tip-of-the-month, short course, what's new in the library and more

1 message

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BioCoR Newsletter February 2011

Dear Allison,

Welcome to the February newsletter. The Tip-of-the-Month is back and there are new additions to the BioCoR library. Information on a recent webinar and the short course is also included. Finally, do not miss out on a chance to meet BioCoR faculty (we are nice folks-really!).

As always, your comments are very important to us. We expect to see you at www.biocor.net.

BioCoR is a national resource focused on advancing the science, technology and practice of biospecimen preservation. We are dedicated to developing biopreservation protocols, improving preservation and storage technologies, establishing standards and guidelines and training individuals and institutions in the science and technology of biopreservation.

More information can be found on the **BioCoR** website: www.biocor.net. Or you may contact us now at biocor@me.umn.edu

Estimating your thawing rate

TIP OF THE MONTH

Importance of thawing: Your samples traverse the same stresses (osmotic, ice crystal interactions) during thawing as they do during freezing. Therefore, thawing is a critical step in any preservation protocol. Studies have shown that improper thawing technique can reduce the quality/viability of a wide range of biospecimens including proteins, cells and tissues. Therefore, it is important to understand and validate the thawing process for your particular protocol.

Thaw quickly: most biospecimens that have been frozen using conventional 'slow' freezing (< 50 C/min) are best thawed as quickly as possible.

Tempus Fugit: Samples removed from storage (LN2 or mechanical freezers) start warming as soon as they are removed from the repository. The warming rates in air are slow and therefore potentially damaging to the sample. Therefore, the time that the sample is warming in air should be minimized. Remove your samples from the repository and bring them immediately to a water bath for thawing. Samples should be swirled in the water bath to enhance heat transfer and increase the warming rate for the sample. Do not just place your samples in the water bath and walk away!

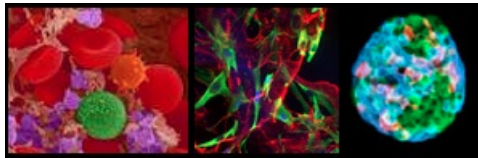
Estimating your thawing rate: All you need is a stop watch and a calculator to estimate your thawing rate. Assume that the initial temperature of the sample is the temperature at which the sample was stored (-196 C for

samples stored in liquid nitrogen, -80 C for single stage mechanical freezers, etc). Furthermore, assume that the sample is 'thawed' when all visible ice crystals have disappeared and the temperature of the sample at that point is 0 C. You will measure the time it takes after the sample is placed in the water bath until all visible ice crystals are gone. You can calculate your estimated warming rate by calculating your temperature difference (0 C minus your storage temperature) and dividing by the time. You are shooting for warming rates ~ 60 C/min or greater.

Caveats: Please keep in mind that these are estimated *average* warming rates based on estimated temperatures. Depending upon the requirements for your facility and sample, you may require a more accurate estimate for the warming rate. Instrumenting a sample with a thermocouple and measure the actual warming rate is not difficult and can provide a far more accurate understanding of your thawing process. Samples that have been vitrified require different handling upon warming.

Increasing your warming rate: There are several strategies to increase your thawing rate safely. These strategies are covered in more detail in the short course.

Preservation of molecular, cellular and tissue biospecimens



Mark your calendar!!

Preservation of molecular, cellular and tissue biospecimens
May 23-25, 2010

Please join us for our seventh offering of this important short course that has been attended by people from all over the world (North America, Asia, Europe, etc). The course covers a full range of topics related to preservation: liquid storage/short-term preservation, fundamentals of preservation, mechanisms of damage, preservation protocol development, repository design and facility design, regulatory issues, preservation in a clinical context, quality for preserved samples and more.

This course is appropriate for managers for biorepositories and cell therapy laboratories, technicians who preserve biological samples as a part of their daily routine, scientists involved in biomarker discovery or use, developers of therapies based on molecules, cells or tissues, biotechnology companies, regenerative medicine companies, tissue banks, and more.

Registration is now available ([online registration](#))

Deadline for early registration is May 2, 2011

The course has been endorsed by ISBER.

Webinar, "Quality considerations in biopreservation"

As described in a recent Wired magazine article, ~1% of the biospecimens currently in storage are of sufficient quality. A recent webinar on January 24 and 26th by BioCoR director, Allison Hubel was entitled, "Quality considerations in biopreservation" and described some of the current limitations in preservation *and* the critical steps during processing and preservation of biological specimens that have an impact on biospecimen quality.

Registration for the webinar was > 160 people from 15 countries and the webinar was well-received by attendees based on the evaluations.

This free webinar will be made available through the BioCoR website (www.biocor.net) and we will be sending a notification when the webinar is available for viewing.

Meet the BioCoR faculty

BioCoR faculty will be out and about speaking on issues related to preservation. Take these opportunities to learn more about BioCoR and preservation.

ISBiotech Meeting

April 4-6, 2011

Norfolk, VA

Dr. Hubel will be speaking on issues related to preservation of hematopoietic and mesenchymal stem cells,
, VA

ISBER Meeting May 15-18, 2011

Rockville, MD

Drs. Hubel and Skubitz will be at the meeting. Dr. Hubel will be speaking on standardization of biobanking.

ISCT Webinar

June 15, 2011

Dr. Hubel will be speaking on issues related to preservation of cellular therapies. Information on signing up for the webinar can be found on the ISCT website.

Cryo 2011

July 24-27, 2011

Corvallis, OR

Dr. Hubel will be chairing a plenary session on Current trends in biobanking.

NAOSSM Annual Meeting

July 25-29, 2011

Minneapolis, MN

Dr. Hubel will be speaking on using preservation to bridge the gap between sources and users of biological specimens.

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