



Allison Hubel <hubel001@umn.edu>

BioCoR: Tip of the Month, BioCoR in the News, and much more

1 message

BioCoR <biocor@me.umn.edu>

Reply-To: biocor@me.umn.edu

To: hubel001@umn.edu

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BioCoR Newsletter September 2010

Dear Allison,

Welcome to the September newsletter of BioCoR. Yes, we realize that this is actually October but we delayed sending out the September newsletter so that we could include information about an important publication by BioCoR faculty. In this issue, we also have the Tip of the Month, information on upcoming meetings of interest and opportunities to meet BioCoR faculty.

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

Tip of the Month

TIP OF THE MONTH

Improve your preservation practice by monitoring the temperature as a function of time for your samples.

Biological specimens (proteins, cells, tissues) are strongly influenced by temperature. A variety of articles in the [BioCoR library](#) quantify the importance of temperature. The rate of temperature decrease during freezing and warming/thawing plays an important role in the quality of the sample. In addition, the temperature of storage (and its stability) is important for shelf life of the sample.

Temperature monitoring equipment: there are a variety of devices that can be used to measure temperature. In our laboratory, we use thermocouples; they are rugged, cheap and readily available. Type "T" thermocouples are designed for low temperature applications. Other types of thermocouples or measurement devices (such as thermistors) cannot be used at low temperatures without significant measurement errors. The thermocouple should be connected to a data logger with the appropriate electronics (specifically a reference junction) to permit the EMFs measured to be translated into a temperature. As the variation of temperature with time is important, the data logger should permit collection and storage of the temperature and its variation with time.

Using the equipment effectively: Thermocouples can be attached to the side or holes drilled in the top/side of the container and placed inside the liquid sample (used for test samples that will not be banked). These instrumented

samples can be placed in the desired environment and temperature as a function of time monitored. For example, cooling rate of a sample placed on a shelf in a -80 C freezer and the cooling rate of the sample determined. Similarly, a sample can be instrumented and the thawing rate of the sample can be determined based on your protocol.

More information on using temperature measurements to monitor your preservation protocols can be found in our short course ([short course](#)). Dates for 2011 offerings will be posted shortly.

Hot off the presses!!

Catch a new article in Biophysical Journal published by several BioCoR faculty (doi:10.1016/j.bpj.2010.08.035).

In the article, we describe direct determination of the state of intracellular water, measurement of the intercellular concentration of a cryoprotectant agent (dimethylsulfoxide), and the distribution of organic material in frozen mammalian cells. Confocal Raman microspectroscopy was utilized at cryogenic temperatures with single live cells to conduct high spatial resolution measurements (350 x 350 x 700 nm), which yielded two, we believe, novel observations: 1), intracellular ice formation during fast cooling (50 C/min) causes more pronounced intracellular dehydration than slow cooling (1C/min); and 2), intracellular dimethylsulfoxide concentration is lower (by as much as 50%) during fast cooling, decreasing the propensity for intracellular vitrification. These observations have a very significant impact for developing successful biopreservation protocols for cells used for therapeutic purposes and for cellular biofluids.

Meet BioCoR

The following is a listing of events at which you can meet faculty from BioCoR, find out more about what we do and learn about preservation. Each event is tied to a link that should give you more information on location and participating in the event.

Institute for Engineering In Medicine Innovation Showcase

September 28, 2010

BioCoR director, Allison Hubel, will be speaking on microfluidic devices in preservation.

Medical Device Center Bootcamp

September 30, 2010 from 1-3 pm

BioCoR director, Allison Hubel, will be speaking on technology development in preservation.

PACT workshop

October 26-27, 2010

BioCoR director, Allison Hubel, will be speaking on improving your preservation practice for cell therapies.

Departmental Seminar

North Carolina State University

Nov 1, 2010

BioCoR faculty, Alptekin Aksan, will be speaking on biostabilization

Biobanking: Maximizing Your Investment

December 6-8, 2010

BioCoR faculty, Allison Hubel and Alptekin Aksan will be providing a short course on biopreservation and speaking about the state of the art in preserving biofluids

Want to learn more about BioCoR? Our faculty are available to speak to your organization.

Upcoming Meetings

Mark your calendar for upcoming meetings related to preservation of molecules, cells and tissue.

AABB Annual meeting

Baltimore, MD
October 9-12, 2010

ISCT Annual Meeting
May 18-21, 2011
Rotterdam, Netherlands

ISBER 2011 Annual Meeting
Arlington, VA (Washington, DC)
May 15-18, 2011

Cryo2011
Corvallis, Oregon
July 24-27, 2011

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BioCoR | University of Minnesota | 111 Church St. SE | Minneapolis | MN | 55455
