



Allison Hubel <hubel001@umn.edu>

BioCoR: Preserving Algae, short course, link to webinar and more

1 message

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BioCoR Newsletter March 2011

Dear Allison,

Welcome to the March newsletter. Preservation is an enabling technology for a wide range of fields. Dr. John Day reminds us of that in his overview of preserving algae. Algae is one of many organisms of tremendous interest and they also present a tremendous challenge for preservation.

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

Algal Cryopreservation - current status

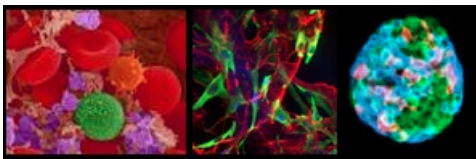
*Dr John G Day
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A quick internet search using terms like algal biofuels or algal biotechnology will reveal a bewildering array of information on academic and commercial activity in this rapidly expanding sector. It is clear that these amazingly diverse group of organisms have huge biotechnological potential because of their diversity (range of potential products) and exceptionally high, (compared to higher plants), productivity levels. What will be clear to those familiar with the exploitation of microbial biological resources is that there is an absolute requirement for phenotypical (form & productivity) and genotypical (molecular code) stability. As readers of this newsletter are fully aware cryopreservation is the method of choice for conserving many micro-organisms as their storage in liquid nitrogen, or liquid nitrogen vapour circumvents the need for repeated sub-culturing and mitigates against the destabilising changes associated with the long-term culture of actively growing organisms. Compared to bacteria or fungi, algae are problematic to maintain and most workers, world wide, still keep strains of interest by routine serial transfer of live material. However, a number of workers and the main protistan/algal culture collections including the Culture Collection of Algae and Protozoa (CCAP) have undertaken rolling programs to preserve some of their holdings and today 4-5,000 strains are held in a cryopreserved state world-wide. In general, conventional, colligative

controlled-rate two-step cooling employing dimethyl sulphoxide, as cryoprotectant is the method of choice. However, alternative techniques including encapsulation-dehydration-vitrification have been applied to a range of freshwater, terrestrial and marine taxa.

Although progress has been made in the past 10 years many algal taxa are still considered to be recalcitrant to standard cryopreservation approaches and much work remains to be done. In particular those employing genetic manipulation to enhance performance in algae, either through conventional mutagenesis or genetic manipulation would be well advised to employ cryopreservation as their standard maintenance technique for master stock-cultures. In addition, further research investigating the genetic stability of such strains is urgently needed. Those working on algal cryopreservation would welcome collaborations that would help address the fundamental issues of freeze-recalcitrance, freeze-induced injuries, protocol development and stability assessment.

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](#))

We are looking for industrial partners in the short course. If you are interested, please contact us at biocor@me.umn.edu for more details.

Deadline for early registration is May 2, 2011

The course has been endorsed by ISBER.

Webinar, "Quality considerations in biopreservation" now available on line

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.

A recording of this webinar is now available in the BioCoR library ([BioCoR library](#)). We hope that you benefit from the information provided.

Preserving cells for epigenetic research

There is considerable growth in research into epigenetics. Unfortunately, conventional methods of preserving cells use dimethylsulfoxide (DMSO). This common cryoprotective agent is associated with histone modification and DNA methylation and therefore is not suitable for use with cells preserved for epigenetic studies.

BioCoR has been working on a protocol for DMSO-free preservation of cells for epigenetic research. Several investigators have expressed interest in the protocol and the most recent version has been distributed to investigators. BioCoR is also establishing a working group on the topic. If you are interested in the protocol or participating in the working group, please do not hesitate to contact us at biocor@me.umn.edu.



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UNIVERSITY OF MINNESOTA and the Academic Health Center of the University of Minnesota.*

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