

SLTB Newsletter



The Society for Low Temperature Biology (SLTB)

It is hoped that this New Year issue of the SLTB Newsletter will help new and prospective members of the SLTB, in particular, gain an impression on the diversity of interests of the Society and its membership. I felt it was worth reiterating here the broad spectrum of disciplines and technologies associated with the SLTB. The Society has members from a wide variety of scientific backgrounds dealing with diverse organisms, materials and technologies. Areas of activity amongst the membership include:

- Cryopreservation of cells, tissues, organs and materials for medical purposes
- Cryopreservation of plant cells and tissues and cultures of algae, protozoa and filamentous fungi and other microorganisms for the purposes of sustainable agriculture, biotechnology and conservation of biodiversity
- Refrigeration of biological materials
- Preservation of human and animal gametes and embryos
- Tissue engineering
- Cold tolerance of natural biological systems including plants, invertebrates, animals and microorganisms
- Low temperature aspects of hibernation
- Biochemistry of natural cryoprotectants and cryoprotection
- Cryomicroscopy
- Physics of supercooling, ice nucleation/formation and heat transfer

I would like to encourage all of you receiving this Newsletter to forward it to interested colleagues and encourage them to join the Society. I can say without hesitation that I have found membership invaluable over the years for the development of my research and cryobanking activities. I almost forgot.... The SLTB scientific meetings are amongst the most scientifically interesting and socially enjoyable scientific meetings I have attended over the past 15 years!

John G Day, SAMS, Oban

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The International Polar Year (IPY)

Many of us may be forgiven for thinking that international multidisciplinary scientific collaboration is a relatively modern phenomena; however, this is not the case as one may debatably trace historic advances in fields as diverse as astronomy and medicine to the active involvement of scientists and engineers from many nations. In recent years the role of the EU and other major funders has stimulated a number of international projects in the field low temperature biology including: COBRA www.cobra.ac.uk and CRYMCEPT www.CRYMCEPT.ac.uk and this continues into the future (see article by Joachim Keller below). However, the first major low-temperature orientated international project was the International Polar Year 1881. This was inspired by the Austrian explorer Carl Weyprecht and involved 11 nations establishing 14 principal research stations across the Polar Regions to collect meteorological and physical data. These were subsequently analysed, interpreted and published. This work forms an invaluable pre-

global-warming, base-line dataset and much of these data are now available on-line at <http://www.arctic.noaa.gov/aro/ipy-1/index.htm>

Over the past few years plans have been developed for a second International Polar Year and IPY 2007-2008 will be officially launched on March 1st 2007, with an international press conference at the Palais de la Découverte in central Paris. The IPY 2007-2008 will be an intense, internationally coordinated campaign of research that will initiate a new era in polar science. IPY 2007-2008 will include research in both polar regions and recognise the strong links these regions have with the rest of the globe. This campaign of interdisciplinary research will explore new frontiers in polar science, improve our understanding of the critical role of the Polar Regions in global processes, and educate the public about the Polar Regions. Projects are expected to be interdisciplinary in scope; involve a pulse of activity during the IPY period; leave a legacy of infrastructure and data; expand international cooperation; engage the public in polar discovery; and help attract the next generation of scientists and engineers. To accomplish these goals, there have been calls by a number of funding agencies aimed at soliciting project proposals in the following areas:

Understanding Environmental Change in Polar Regions: This area supports research that advances the understanding of the physical, geological, chemical, human, and biological drivers of environmental change at the poles, their relationship to the climate system, their impact on ecosystems, and their linkages to global processes.

Human and Biotic Systems in Polar Regions: This area provides opportunities for scientists to address fundamental questions about social, behavioral, and/or natural systems that will increase our understanding of how humans and other organisms function in the extreme environments of the polar regions.

Education and Outreach: This area supports education proposals that specifically invigorate science, technology, engineering, and mathematics education in the context of the IPY, including: formal science education

projects at school, undergraduate, or graduate levels and informal science education projects for the broader public as well as communication/ out-reach for IPY education projects.

For further details on IPY see <http://www.ipy.org/> and websites of appropriate national scientific funding agencies.

GreenICE Greenland Arctic Shelf Ice and Climate Experiment

Sea ice covers 7% of the surface of our planet. It is one of the most important and variable components of the planetary surface and is the key to understanding many basic questions about the energy balance of the Earth. The ice-covered seas represent the cold end of the enormous heat engine that enables the Earth to have temperatures suitable for human life over most of its surface. Solar radiation, absorbed by the ocean at equatorial latitudes, is transported pole-ward and lost through the sea ice to the atmosphere at a rate determined by the extent, thickness, and consistency of the ice cover. Sea ice also helps drive the oceanic thermo-haline circulation through salt rejected by ice formation in critical regions, and directly affects climate through its high albedo, which causes sea ice retreat to have a positive feedback effect on climatic warming. These global effects are due to a material that experiences a huge annual cycle of growth and decay, especially in the Antarctic where almost all of the sea ice disappears in summer, while in winter its area reaches 20 million km².



The role of the SAMS Sea Ice researchers is to study the mechanisms by which physical processes occurring in the polar seas affect the global climate and global climatic change, and the nature and magnitude of the changes that are taking place. The overall aim of the EU funded GreenICE project was to study the structure and dynamics of the sea ice cover in a critical region of the Arctic Ocean, north of Greenland, and to relate these to longer-term records of climate variability retrieved from sediment cores.

The ice cover in the region is among the thickest in the Arctic, as the sea ice is forced against the north coast of Greenland and the Canadian Archipelago by the transpolar drift stream. This thick and heavily-deformed ice prevents access by even the most powerful icebreakers and has resulted in an almost complete lack of ice, ocean or geological data from the region. The challenge was to determine in what way ice conditions are changing as part of the overall pattern of retreat and thinning seen elsewhere in the Arctic, and at the same time to determine from seabed coring whether such a heavy ice regime, deep inside the ice limits, was ever free of ice during the past two glacial cycles.

The project was an integrated programme of measurements, remote sensing and modelling. The project yielded major discoveries about the periodically ice-free nature of the central Arctic Ocean. In addition, methods of ice thickness determination were inter-compared in an area of high thickness and roughness, and a novel technique of thickness monitoring was found not to function in the way described by its progenitor. The project produced extensive co-operation between groups and demonstrated the valuable insights that a multi-platform approach can achieve. The techniques and rationale developed by the project are finding continued application under follow-up projects such as the European DAMOCLES and CRYOVEX programmes, which will continue to track the evolution of ice thickness in this critical area in coming years.

Please see the following web links for more information:

GreenICE – <http://www.greenice.org/>

DAMOCLES - <http://www.damocles-eu.org/>

CRYOVEX - <http://www.cryovex.dk/>



Nick Hughes & Jeremy Wilkinson, SAMS, Oban, UK

Polar Research and Cold Region Technology

It is noticeable that in recent years there have been fewer active SLTB members from the fields of environmental cryobiology, food cryopreservation and animal husbandry. The current committee hope to redress this trend and are currently targeting a number of organisations and individuals to encourage the expansion of the Societies membership. On a superficial scan of the Internet one can find a large number of organisations and bodies that are active in these areas and as a first introduction to the subject a number of key Polar Research organisations are listed below. Fuller details and web links are accessible at: <http://www.luth.se/foundations/coldtech/colde/el.html>

Europe

[The Alfred Wegener Institute.](#)

The German national center for polar and marine research. Bremerhaven, Germany.

[Arctic Council](#)

The Arctic Council is a high-level intergovernmental forum that provides a mechanism to address the common concerns and challenges faced by the Arctic governments and the people of the Arctic. Arctic Council Secretariat, Finnish Ministry for Foreign Affairs, Helsinki, FINLAND

[BAS \(British Antarctic Survey\).](#)

Cambridge, UK.

[The Belgian Antarctic Research Programme](#)

A multi-annual national thematic action designed, funded and managed by the Federal Office for Scientific, Technical and Cultural Affairs (O.S.T.C.)

[BIS](#)

Barents Information System. A growing collection of information centers in Norway, Sweden, Finland and Russia. NORUT-IT, Tromsø, Norway.

[Danish Polar Center](#)

Danish Polar Centre, Copenhagen, Denmark

[Norsk Polarinstitutt](#)

The Norwegian Polar Institute, Oslo/Tromsø/Longyearbyen, Norway.

[Norut NIBR Finnmark](#)

Finnmarksforskning. Finnmarkodutkan. A regional research institute specialized in aqua and geoscience. Alta, Norway.

[PNRA](#)

Italian National Antarctic Research Program. Research on geological evolution, geographical information, robotics and sensoristics. Environmental and biological observations and studies. Rome, Italy.

[The Roald Amundsen Centre for Arctic Research.](#)

University of Tromsø, Norway.

[SPRI](#)

Scott Polar Research Institute, University of Cambridge, UK.

[Swedish Polar Research Secretariat - Polarforskningssekretariatet.](#)

Information about Swedish Polar research.

North America and Canada

[Arctic Institute of North America](#)

The University of Calgary, Calgary, Alberta, Canada.

[Arctic Studies Center](#)

National museum of natural history, Smithsonian institute, Washington, D.C.

[ARCUS](#)

The Arctic Research Consortium of the United States. Information and resources regarding research in the Arctic. Directories. Projects. Fairbanks, Alaska.

[Byrd Polar Research Center](#)

Ohio State University, Columbus, USA.

[C-CORE](#)

Centre for Cold Ocean Resources Engineering, supported by the Ocean Engineering

Information Centre. Memorial University of Newfoundland, St John's, Canada.

[Canadian Circumpolar Institute](#) - CCI

CCI's promotes and supports research on the Canadian and Circumpolar North, especially that involving interdisciplinary and multidisciplinary programs." University of Alberta, Edmonton, Canada

[The Churchill Northern Studies Centre](#)

A non-profit charitable corporation with a mandate to facilitate arctic research and education. Churchill, Manitoba, Canada.

[Polar Science Center](#)

Studies on sea, ice, polar oceanography, and meteorology. Applied physics laboratory, University of Washington, Seattle, USA.

Asia and Oceania

[JACARA](#)

The Joint Australian Centre for Astrophysical research in Antarctica, Australia.

[JARE](#)

Japanese Antarctic Research Expedition. National Institute of Polar Research, Numazu College in Technology. In Japanese. Tokyo, Japan.

Africa

[Antarctica and Environmental Affairs](#)

Projects done locally and abroad in cooperation with the South African Department of Environmental Affairs and Tourism. Department of Physics. Potchefstroom, South Africa.

Some Recent Developments in the European Cryo-Landscape

By the end of the year 2006 there were a number of new highlights in the European cryopreservation "landscape", which have further encouraged plant cryo-workers to intensify international collaboration, both with respect to fundamental research and broad applications to maintain and rescue plant germplasm.

The COST Action 871 CRYOPLANET

Thanks to the activities of a consortium of colleagues who had formerly collaborated in the CRYMCEPT project (funded under the EU

5th Framework), and in particular Dr. Bart Panis, Catholic University of Leuven, Belgium, a new COST action has been inaugurated. The Action, named CRYOPLANET will, for the next four years, provide funds for travel activities to different COST meetings and for short-term-scientific missions (STSM) in order to further develop European collaboration in plant cryopreservation.

The scope of the COST action includes: the screening of the current utilisation of cryopreservation for plant conservation in Europe; the assessment of the efficiency of existing cryopreservation protocols; the improvement of the fundamental knowledge-base on cryopreservation, through the determination of physico-chemical changes associated with cryopreservation tolerance; the development of new cryopreservation protocols; the assessment of genetic stability after cryopreservation; increased usage of cryopreservation to conserve European germplasm collections and the assessment of the environmental, social and economic impact of these methods. These objectives will be reached through the establishment of two working groups (WGs). The Fundamental Aspects WG will focus on the main factors of cryopreservation such as: water thermal behaviour; use of sugars; proteins; membrane components; cytoskeleton; oxidative stress and polyamines as well as on the genetic stability issues. The Technology and Application WG will focus on all the aspects of technology application and mutual validation of the methods, their impacts on society and their utilization for germplasm preservation.

To date, 15 countries have signed the MOU for this COST action and a Management Committee of delegates from the signatory countries will be responsible for the organization of the action.

The Kick-off Meeting was held on December 12 in an open and constructive atmosphere in the Brussels COST office. This is on the 21st floor of a high building giving a panoramic view over this large vibrant city and, thus, creating a fitting environment for far-reaching projects.

The action is chaired by Dr. Bart Panis, Leuven (Belgium), with Prof. Paul Lynch, Derby (UK - Vice Chair). Working Group 1 is headed by Prof. Pawel Pukacki, Poznan (Poland) and Dr. Revilla Angeles, Oviedo (Spain), the WG 2 by Dr. Florent Engelmann, Montpellier (France) and Dr. Joachim Keller, Gatersleben (Germany).

The first WG 1 meeting will be held in Oviedo, Spain, on April, 13-14. The first WG 2 meeting will take place in Florence, Italy, on May 11-13. The Management Committee also agreed to actively involve the N.I. Vavilov All-Russian Research Institute of Plant Industry VIR, St. Petersburg, Russia in this action. For more information on the Memorandum of Understanding and information on how to participate in the Action, please consult the COST website:

http://www.cost.esf.org/index.php?id=182&action_number=871

EU GenRes Project EURALLIVEG

It is widely recognised that the maintenance of vegetatively propagated germplasm imposes a significant burden to living plant collections; therefore, the recent approval of a European project under the Council Regulation (EC) No 870/2004, focusing on the vegetatively propagated crops including garlic and shallots is a real success for the European genebanks. In Europe there is a rich genepool of garlic and shallot genetic resources (1) and this project is dedicated to establish a European Core Collection of vegetative alliums. For garlic this will include molecular characterization, cryopreservation and virus elimination, and for shallots, molecular characterization. The cryopreservation activities amount to more than one third of the project costs, and 65% of the manpower allocation. Since Regulation 870/2004 is on the application/ implementation of preservation/ maintenance methodology, not fundamental research, the activities are organized for the further implementation of an integrated system of conserving European genetic resources, specifically, Allium crops. It is envisaged that screening for duplicates using molecular markers will help to rationalize the collection and measures for virus elimination will increase the quality of the stored material. Cryopreservation,

successful results of which have been published recently (2 - 5), is the basis for a trilateral cryo-bank system CGP. The partner countries will be Czech Republic, Germany and Poland. Thus, all requirements for a multi-local safety-duplicating system are fulfilled.

The project will start on April 1 this year and will run for four years. The participants are: the Leibniz Institute of Plant Genetics and Crop Plant Research Gatersleben, (Germany - coordinator), the Institute of Crop Production Prague RICP (Czech Republic), the Institute of Vegetable Research RIVC Skierniewice (Poland), the University of Basilicata Potenza (Italy), the Centre for Genetic Resources CGN Wageningen (Netherlands), the National Institute for Agricultural Research INRA, Station Ploudaniel (France), and the Nordic Genebank Alnarp (Sweden - for all Nordic Countries).

References

1. Keller, J. and D. Astley (2006) Rich genepool of vegetatively propagated *Allium* L. in Europe. *IPGRI Newsl. Europe* **32**: 7.
2. Ellis, D., D. Skogerboe, C. Andre, B. Hellier and G. Volk (2006) Implementation of garlic cryopreservation techniques in the national plant germplasm system. *CryoLetters* **27**: 99-106.
3. Keller, E.R.J. (2005) Improvement of cryopreservation results in garlic using low temperature preculture and high-quality *in vitro* plantlets. *CryoLetters* **26**: 357-366.
4. Keller, E.R.J., A. Senula, S. Leunufna and M. Grübe (2006) Slow growth storage and cryopreservation - tools to facilitate germplasm maintenance of vegetatively propagated crops in living plant collections. *Int. J. Refrigeration* **29**: 411-417.
5. Kim, H.-H., J.-K. Lee, J.-W. Yoon, J.-J. Ji, S.-S. Nam, H.-S. Hwang, E.-G. Cho and F. Engelmann (2006) Cryopreservation of garlic bulbil primordial by the droplet vitrification procedure. *CryoLetters* **27**: 143-153.

E. R. Joachim Keller, IPK Gatersleben, Germany

From the Treasurer

Firstly, a Happy New Year to you all.

Secondly, as we have moved to 2007 the time has come to pay, or amend your subscriptions. The rate is still £20 for standard membership or £15 for students but many of you are paying less than this, as your Standing Order at the bank has not been updated in some while. Can I encourage you to check on your situation and if a new mandate is needed, a downloadable form can be found on the society website at <http://www.slbt.info/forms.html>. The gift aid form is also available on the site.

Shortly there will be the option of opening up a PayPal account to pay your subscription for members outside the UK. You will need to use the internet to sign up for free PayPal account (www.paypal.com) and then pay your subscription plus 1GBP to cover the Society's cost for the transaction. You will need an e-mail address for the Society to achieve this and it will appear on the website shortly. Please note that this e-mail address will only accept payments, other e-mail contact should be made directly to one of the committee members, whose details are also on the website.

Alternatively, payments can be sent by cheque, in GB pounds, made payable to the Society and sent directly to: Brian Grout-SLTB Treasurer, Faculty of Life Sciences, University of Copenhagen, Højebakkegaard Alle 9, 2630, Taastrup, DENMARK (email: bwg@life.ku.dk).

As you can see, I am currently working in Denmark, but the finances are still administered from the UK

From the General Secretary

Those of us who have been members of the SLTB for some time will endorse the informal, friendly ethos associated with the SLTB and in particular at its periodic scientific meetings. However, all organisations require some level of structure to enable them to function and fulfil their remit and the SLTB, as a registered

UK Charity (Charity Commission for England & Wales No. 1099747), has to have an agreed constitution (see <http://www.sltb.info/archive.html>). In the recent past we have had some minor problems arranging meetings because the Constitution (Article 16) states that the AGM should be held in "September each year or as soon as practicable thereafter". It is proposed to delete this sentence from the Constitution in order to increase the flexibility of when AGMs may be conducted to allow us, on occasion, to have joint meetings with other organisations. In addition it is proposed, as many of the members live outside the UK, the phrase "in the United Kingdom" should be deleted from Article 19 of the Constitution.

In accordance with Article 20 these alterations/amendments will be formally raised and voted on at the next AGM, which will be held at Univ. Derby in September (see below for meeting details).

New Members

It is planned to ask future new members of the SLTB if they wish to submit a short, one paragraph, pen-picture about their interests. So watch this space for potential future collaborators, students, post-docs etc.

New Student Members

Abdulrhman Al Haider:
Royal Veterinary College, London

Mo Guan:
University of Bedfordshire, Luton

Anja Kaczmarczyk:
Leibniz Inst. Plant Genetics & Crop Plant Res,
Gatersleben, Germany

Tiziana Zampola:
University of Bedfordshire, Luton

Forthcoming Meetings

STLB: Annual Scientific Meeting, AGM and Symposium: *Validation, Safety and Ethical Issues Impacting The Low Temperature Storage of Biological Resources* **University of Derby** **12th – 14th September 2007**

This symposium provides a cross-discipline forum to consider the role of validation, safety and ethical issues in the preservation of different types of living resources at low temperatures. The routine use of cold and ultra-cold storage technologies in culture collections, tissue and organ banks, and Biological Resource Centres requires effective technology transfer and validation of a wide range of interconnected procedures (e.g. tissue procurement, *in vitro* manipulations, cold storage, cryopreservation, authentication). The approaches of different sectors and disciplines to issues of low temperature storage validation, safety and ethics will be considered in this symposium. As well as the different perspectives of research cryobiologists, the custodians that safeguard the stored resources and the practitioners and end users that benefit from them. Subjects encouraged for discussion include: validation procedures and safety and risk assessment strategies. For example, in relation to donors, operators and users of cold-stored living resources, cryobanking operations, risks of premature/accidental re-warming, mistaken identity, cross-infection transmission within cryo-tanks, safety equipment and alarm systems.

The meeting will also include "Free Communications" sessions that will include general aspects of low temperature biology.

Conference Organisers

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CRYO 2007
44th Annual Meeting of The Society for
Cryobiology
Lake Louise, Alberta (Canada)

July 29 - August 1 2007

This broadly-focused scientific meeting will bring together diverse disciplines related to cryobiology and biopreservation, from fundamentals to applications. A variety of plenary and regular sessions are planned with a goal of fostering discussion among experts and trainees.

For further information:
<http://www.cryo2006.org>

OTHER MEETINGS
3rd International Orchid Conservation
Conference
San José (Costa Rica)
March 18-23, 2007

This meeting (III IOCC) is organized by The Lankester Botanical Gardens, and promises to be a once-in-a-lifetime experience. Not only will participants enjoy a rare opportunity to hear lectures by, and rub shoulders with, some of the most important scientists in the orchid world today, but the conference is also being held in one of the world's most beautiful countries. The Congress will provide a forum for sharing knowledge, concerns, and hypotheses about the status of orchid conservation.

For further information:
<http://www.jardinbotanicolankester.org/ing/congress.html>

The Biodiversity Extinction Crisis, a Pacific
and Australasian Response
Sydney (Australia)
July 10-13, 2007

The world faces its sixth great extinction event, driven mainly by humans. The Pacific/Australasian region faces special challenges including: island ecology, rising sea levels, changing rainfall and land and water degradation. These issues are overlaid by the general problems of habitat loss and fragmentation, invasive species, pollution and over-harvesting. This Conference identifies the major problems for biodiversity conservation in the region, existing and potential solutions and links to the global biodiversity initiatives. Real opportunities can be found in the nexus between conservation science and policy-makers, managers and the community.

For further information:
<http://www.biodiversity2007.com/>

21st Annual Meeting of the Society for
Conservation Biology
Port Elizabeth, Eastern Cape (South Africa)
July 1-5, 2007

The theme of the 2007 annual meeting is One World, One Conservation, One Partnership and emphasizes the need to move away from national, regional and disciplinary territoriality in support of a joint effort to conserve the world's biodiversity by uniting towards a common goal.

For further information:
<http://www.nmmu.ac.za/scb/>

2nd International Conference on
Magnetic Refrigeration at Room
Temperature
Portoroz, Slovenia
April 11-13, 2007

For details see <http://www.thermag2007.si>



For further details see:

<http://www.icr2007.org/column.asp?classid=14>

If you have a meeting or other event that you would like published in the next SLTB Newsletter, please send the information to any member of the Committee. Thank you

Recent Publications Roundup

Cryopreservation of plant tissues generally necessitates inducing high levels of dehydration tolerance since the specimen has to endure extreme dehydration in the vitrification solution or severe air drying before immersion in liquid nitrogen. Such increased tolerance to desiccation is normally achieved by preculturing either with high concentrations of sucrose, abscisic acid or cold hardening, but is often difficult to induce, thereby restricting the applicability of cryopreservation techniques. In an attempt to understand the induction mechanisms of such dehydration tolerance Suzuki *et al.* (*Annals of Botany* 97: 1073-1081) followed physiological changes in gentian (*Gentiana scabra*) axillary buds induced by each of the two-step preculture treatments (first step: mild osmotic stress from 0.1M sucrose for 11 days, second step: 0.4M and 0.7M sucrose for 1 day each). They observed a transient increase in ABA content, a progressive rise in proline and increased levels of soluble sugars particularly raffinose (during step 1) and sucrose throughout the preculture period. For successful cryopreservation they found the two preculture steps to be indispensable and interdependent and

hypothesise that the first step involves ABA-mediated cellular changes while the second step increases dehydration tolerance through loading of sucrose in the gentian buds.

While effective, such conventional methods of cooling cells and tissues using liquid nitrogen puts samples at risk of contamination from liquid cryogen borne bacteria. In contrast Asymptote's 'Stirling Cycle' freezer is a LN-free electrically powered cooler reported to reach temperatures below -100°C, and Frasier *et al.* (*CryoLetters* 27 (3): 179-184) report the first trial of the equipment for use in horse semen cryopreservation. Samples were cooled in 0.25 ml straws and 15 ml bags in the Stirling Cycle freezer under laboratory conditions and as a portable device, powered from a car battery. For comparison, straws were frozen in a conventional liquid nitrogen controlled rate freezer. Upon thawing, motility and viability of samples frozen in the Stirling Cycle freezer were not significantly different when compared to samples frozen in the liquid nitrogen freezer. Murine embryos and embryonic stem cells were also cryopreserved with the Stirling Cycle freezer (Morris *et al.* (2006) *Reproductive BioMedicine Online* 13 (3): 421-426) and upon thawing the rates of cell survival were reported to be greater than 50% for both specimen types, based on morphology (mouse embryos) and staining and colony formation (human embryonic stem cells). The freezer thus has potential for use in veterinary and genetic conservation applications and in particular where safeguards against contamination are vital in patients whose immune systems are deficient or have been compromised by drugs and/or radiation.

Andy Wetten, University of Reading, UK



Postdoctoral Position in Genebank Management Coordination within the EU-funded Project EURALLIVEG

The Leibniz Institute of Plant Genetics and Crop Plant Research (IPK, <http://www.ipk-gatersleben.de>) conducts basic and applied research into the following key research areas: Genetic Diversity of Crop Plants, Dynamics of Plant Genomes, and Integrative Biology of Plant Performance. It is the host institution for the Central German Crop Plant Collection maintaining 150,000 accessions of very diverse crop species. One of the major crop groups is the genus *Allium*. Regarding maintenance of germplasm, garlic and shallot need special efforts because of their permanent vegetative maintenance needed. An EU Project was, therefore, submitted and approved to implement three major tasks: molecular marker screenings for rationalization, cryopreservation and virus elimination. IPK will coordinate these activities amongst 8 partner institutions. The institute currently hosts about 450 employees and provides state-of-the-art background for these activities in laboratory facilities and genebank units.

1 postdoc position (E 13 TV-L) (Position number 03/01/07)

will be available for a period of 4 years, beginning from April 1, 2007. The main task of this position is coordination of the project together with the scientific input into the supervision of these three activities, especially cryopreservation. Furthermore, the work of a technical assistant will be organized.

Applicants will have the opportunity to work in a multinational environment combining validation of modern biotechnological methods and their integration into the European germplasm preservation strategy. The incumbent should hold a PhD in Agriculture or Biology or related areas. Applicants showing profound experience in at least one of the three topics will be preferably considered. Interest and ability in science management are preferable. The applicant must be fluent in English language.

For details, please contact Dr. Joachim Keller (keller@ipk-gatersleben.de) and see the website <http://pgrc.ipk-gatersleben.de/euralliveg/>.

Please send your application including curriculum vitae, publication record, a statement on appropriate experience and the names of two references to:

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