

**'Access and benefit sharing discussions at the 11<sup>th</sup> International Symposium on the Genetics of Industrial Microorganisms'**

Representing the GBRCN Demonstration Project, David Smith presented a talk *Networking Biological Resource Centres to underpin the Bioeconomy* in a symposium session Access to Microbial Genetic Resources and Biodiscovery, at the



**Eleventh International Symposium on the Genetics of Industrial Microorganisms**. The session was attended by over 50 participants. Discussions focussed on issues of access in light of the recent draft of the CBD Access and Benefit Regime highlighted by Ben Philips from the Australian Government, Department of the Environment, Water, Heritage and the Arts. A key issue of concern in the draft protocol is Article 8 – Transboundary cooperation which refers to instances where the same genetic resources are found *in situ* within the territory of more than one party.

There is considerable concern on how this might be defined; does it refer to the same species being found in two different countries? Although it may be different for an animal or a plant, for microorganisms the properties of the organism are influenced by its environment and although strains of the same species of fungus or bacterium might be found in several countries they could have widely differing properties. For example, a strain of a species isolated from the hot deserts or tropical rain forests might not have the cold tolerant enzymes of strains of the same species isolated from Polar Regions. So 'appropriate co-operation' as it says in the protocol, (whatever that really means) might not be applicable for microorganisms, as the genetic resources are clearly different even though they may have the same species name. It will be a major issue how this might be resolved if/when the protocol becomes policy.

The other area of concern is that different requirements may be put in place for different uses of genetic resources. The possible multitude of sectors that might be included for the sectoral approach could cause serious problems for *ex-situ* service collections and result in a plethora of agreements being administered by lawyers depending upon how the recipient wishes to use the genetic resources. In recent discussions on access to genetic resources for taxonomic purposes, the Global Taxonomic Initiative suggested that access to biological material might not allow for lodging voucher specimens or strains in collections as reference points for taxonomy. However, it needs to be pointed out that without these the taxonomy could well be worthless, as specimens would not be available to confirm results or for further study when new methodologies are applied. A second approach that is suggested is to negotiate facilitated access for non-commercial research on a broader scale. However, a workable definition of "commercial use" is not presented. Almost all academic studies on genetic resources can provide information that can be used commercially at any time after data is published. Although the *Draft Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilisation to the Convention on Biological Diversity* is a step forward in the negotiations, a more complicated future for the legitimate use of genetic resources could result.

## Not so good news from down under

Extensive discussions were held with Prof. Lindsay Sly, Australian Collection of Microorganisms, School of Molecular and Microbial Sciences, The University of Queensland, Brisbane. The focus was primarily the status of collections in Australia and the potential for them to join the GBRCN. A Council of Heads of Australian Collections of Microorganisms (CHACM) had been formed (<http://www.amrin.org/CHACM.aspx>) comprised of the Administrative Heads of the major permanent collections of cultures of microorganisms (including cell lines, DNA, and associated biological material) in Australia. CHACM aims to promote the value and use of culture collections in Australia and their role as custodians of Australian microbial diversity and providers of reference cultures for research, taxonomy, identification, quality assurance, and for use in industry, biotechnology, biodiscovery, and education. This is the body for future contact and negotiations for the GBRCN.

Unfortunately, the Australian Government, much like that of the UK, is not taking a great deal of notice of the value, contribution and needs of its culture collections. So much so that after a long career dedicated to making valuable strains available for research, Professor Sly was forced to close the Australian Collection of Microorganisms (ACM) at the School of Molecular and Microbial Sciences of The University of Queensland because of the lack of financial support and institutional interest. This is unfortunately a common occurrence when researchers retire, their collections are lost, the huge investment made in their assembly, identification, characterisation and curation, wasted. In many cases rare and interesting isolates are lost for ever, many are never found again. Fortunately, most of the organisms of the ACM are preserved by the long-term method of freeze-drying and so the collection is safe for the moment, until someone takes a future decision to save space and money and condemns them to the autoclave. The users of this collection are beginning to panic when they are told that the collection is no longer operating, where can I go, who in Australia is now providing these reference strains, where can I go for advice? It is hoped that the present messages are getting through to the policy makers, decision takers of the University and Australian Government; there is a demand for these products and services. We would hope that this situation is temporary and that the ACM will re-emerge stronger after this experience.

The Australian Collection of Microorganisms (ACM) was developed as a result of over 30 years of research and teaching in systematic and applied bacteriology, and in biotechnology. Since 1972 the Collection has operated a service supplying cultures to over 400 laboratories throughout Australia in science, industry and education. This service was dependent on the income received from the sale and the identification of cultures. The ACM contains the most diverse collection of bacteria in Australia, and also minor significant collections of yeasts and filamentous fungi. The ACM holdings include cultures for use in research, education and taxonomy, as well as cultures required for quality assurance and validation of standard methods of analysis in industry and diagnostic and testing laboratories. A complete set of cultures designated in the Australian Standard methods for microbiological analysis was available as well as many others designated in international



standard methods. The collection includes an extensive range of bacterial taxonomic type cultures and is enriched with cultures of Australian bacterial diversity. The collection acted as a centre of expertise on culture collections of microorganisms, and related areas including culture collection management, the preservation of cultures, taxonomy and identification, and bioinformatics data on the location of cultures, importation, quarantine, and packaging and shipping regulations. It is rare that a collection with such history, content and high usage is closed. It is ironic this is allowed to happen when the OECD is recommending the upgrade collections and increased access to high quality materials to drive innovation and research. Although this tragic situation of ACM put a different light on the discussion of the ACM joining the GBRCN, it has not halted the initiative to bring Australian collections into the GBRCN. The microbial collections of Australia are of key interest in that the information they hold will be delivered via the *Atlas of Living Australia* and investment is being made in the management and delivery of information. However, if the biological materials on which this information is based are not maintained for confirmation and further study, this will diminish the value of the data enormously. Can any Government get this right? Good grounds for the Global Biological Resource Centre Network to swiftly get up and running to help policy makers to find the right solutions and provide the appropriate framework to drive the future bioeconomy.