Genetwork

ICCBnet: a bioinformatics initiative for developing regions

It is commonly accepted that computerized resources in molecular biology, including swiftly accumulating data on genes and proteins, are vital for progress in medicine, pharmacology, agrotechnology and other disciplines. A strength of molecular bioinformatics is its ability to bring the results of comprehensive data searches from state-of-the-art databanks to the fingertips of remotely located scientists. However, while researchers in the USA, Europe and Japan are equipped to utilize these resources, their colleagues in many other regions of the world are not. They lack both the training and the equipment to exploit these vital new tools.

Researchers in Asia, Africa, Central Europe and other rapidly developing regions are eager to plug into the vast molecular biology resources available online. Thanks to ICCBnet (Ref. 1), a UNESCO (Ref. 2)-sponsored bioinformatics network, this now will be possible. ICCBnet, the network of the International Center for Cooperation in Bioinformatics, specializes in start-up assistance for national and local bioinformatics initiatives in developing regions.

The EMBnet model

The model for ICCBnet is EMBnet (Ref. 3), the successful European Molecular Biology Network, which served a similar function for Western European scientists in the recent past. Most West European countries now boast a national EMBnet node which, among other activities, acts as a mirror site of major molecular databases housed at world-class international centers such as EMBL-EBI (Ref. 4), NCBI (Ref. 5) and NIG (Ref. 6). Scientists from EMBnet countries can connect locally to their national node, an often faster and cheaper solution than connecting to a more remote site.

ICCBnet aims to be the equivalent of EMBnet for bioinformatically developing regions. ICCBnet's central node, located at the Weizmann Institute of Science (Rehovot, Israel) is linked to regional nodes - currently in Australia, China, India, Italy, Poland and South Africa - which in turn link to other countries in their region (Fig. 1). Through its node managers and coordinating group, ICCBnet maintains close ties with EMBnet as well as ICGBnet (Ref. 7), the International Center for Genetic Engineering and Biotechnology network associated with UNIDO (Ref. 8).

ICCBnet activities

ICCB activities began in 1994 as a UNESCO-sponsored cooperative program between the Weizmann Institute and the Polish Academy of Science's Institute for Biophysics and Biochemistry. Following the success of the Israeli-Polish undertaking, the Weizmann Institute initiated similar UNESCO-sponsored programs with the Scientific and Technical Research Council of Turkey in 1995, and with the Department of Biotechnology in India in 1996. The inauguration of ICCBnet as an international bioinformatics network took place in April 1997, and during 1997 the network grew from a core of five national nodes to 11. In several countries, multiple ICCBnet subsites have been set up. The UNESCO General Conference voted in November 1997 to recommend incorporation of ICCBnet as a UNESCO activity.

ICCBnet's bioinformatics training activities during its formative year included a workshop for regional node managers at ICCBnet's central facility, Rehovot, Israel, a Central European regional workshop at the ICCBnet node in Warsaw and a national workshop at the Turkish ICCBnet node in Gebze. Organizational site visits were also made to the ICCBnet nodes in New Delhi and Baroda, India and Beijing, China by the network coordinating group. These visits catalyzed local equipment acquisition and network capabilities. Forthcoming ICCBnet bioinformatics activities planned for 1998 include a number of intensive apprenticeships at the ICCBnet central facility for aspiring node managers, a network-wide professional meeting for current node managers, two regional training workshops, and several national and local training workshops. Partial funding for ICCBnet activities has come from UNESCO, national governmental agencies, participating sites and industry.

Membership requirements

Membership in ICCBnet is open to all interested parties who agree with the goals and purpose of ICCBnet and meet the professional requirements of the network. The goals of the network are that participating sites from bioinformatically developing regions become knowledgeable and proficient in receiving, analyzing and transmitting data over the networks and attain self-sufficiency in these skills. A National Node undertakes to coordinate ICCBnet activities within its country. National Node status requires agreement by some appropriate government or other public body (National Academy of Science, Ministry of Education, UNESCO National Committee, and so on) in the local country. Regional Node status requires a commitment by a National Node to coordinate ICCBnet activities in its geographic/demographic region. For further information on membership visit the ICCBnet website^1 or contact the author.

FIGURE 1. The ICCBnet organization. The Central Node of the International Center for Cooperation in Bioinformatics network is located at the Weizmann Institute of Science, Rehovot, Israel. The Regional Nodes (currently six) are outlined. All National Nodes are in italics. Other nodes are subsites.

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What ICCBnet hopes to achieve

Bioinformatics represents a unique and cost-effective opportunity for developing regions to leap-frog into the 21st century. Scientist-propagated and Internetsustained, bioinformatics is also a sphere particularly well suited for regional and international cooperation. ICCBnet, the international network for cooperation in bioinformatics, centers its activities around regions whose bioinformatic resources are at an early stage of growth. It aims to instruct qualified personnel from these countries in bioinformatics technology, to promote connectivity among its nodes and to facilitate use of the international data banks as a powerful tool in the scientific and technological programs of participating individuals, their countries and regions (Box 1).

References
1 ICCBnet, http://dapsas1.weizmann.ac.il/bcd/icc.html
4 EBI, http://www.ebi.ac.uk/ebi-home.html
6 http://www.nig.ac.jp/
7 http://www.icgeb.trieste.it
8 UNIDO, http://www.unido.org

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