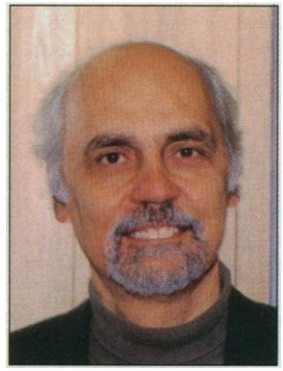
MOLECULAR BIOLOGY

EMBL's Outward Expansion Strains Its Core Facility

HEIDELBERG, GERMANY—Next month, the European Molecular Biology Laboratory (EMBL) plans to open a prestigious new facility north of Rome. Along with other new labs at the site funded by the Italian government and the European Union, it is expected to become an international center for mouse genetics. But the air of celebration will be muted by the increasingly tough constraints EMBL is facing. With its budget almost stagnant, the only way EMBL can expand into new fields is to launch outstations like the new facility in Italy and attract voluntary contributions and local money to help support them. But while these new external centers are flourishing, EMBL is having a tough time maintaining its main Heidelberg facility. Indeed, with science budgets being squeezed across the continent, some national governments are starting to question the role of a large central lab like EMBL.

"One of the problems is that there is now so much more high-quality molecular biology research in Europe that it's increasingly difficult to look distinctive," says Hugh Pelham of the Laboratory of Molecular Biology in Cambridge, U.K., a member of EMBL's scientific advisory committee. "[EMBL's] role has been debated since its inception, but it would be an awful shame to lose any of its activities which have been built up with such difficulty."

Part of that role has always been to strive to be different from national labs. Set up in 1974, following a long campaign by a small and committed group of distinguished researchers, EMBL now has a total of 900 staff and postgraduate students and a core budget of $40 million per year from its 16 member states. Apart from its size, one thing that sets EMBL apart is its broad interdisciplinary program. Another is its commitment to developing new instruments and attracting young scientists as group leaders. They are provided with sufficient funds to run a small group and may stay up to 9 years. The policy is "limited tenure for groups of limited size," says EMBL's director-general, Fotis Kafatos. These conditions have created a unique environment much valued by EMBL staff. "Because no one is competing for tenure, and funding is not dependent on publications, there isn't a competitive atmosphere as there is in the U.S.," says French cell biologist Eric Karsenti.



EMBL

Stretching resources. EMBL Director-General Fotis Kafatos.

But behind the successes, signs of strain are starting to show. EMBL's governing council, made up of representatives of the governments of each member state, must make all decisions unanimously, so it is easy for any government to stifle budget increases. And with many member states struggling to bring their government spending under control as a condition for joining the single European currency, their enthusiasm for international commitments has been blunted.

Each government's contribution to EMBL's core funding is calculated according to national income, so if any one country wants to cap its contributions, it must veto budget increases for the whole lab. As a result, while EMBL's budget grew steadily through the 1980s, it is currently limited to a 5% budget increase until 2000. "Such dependency on each country's contribution creates something of an atmosphere of vulnerability," says group leader Juan Valcarcel. "A 1% cut for us would have a dramatic effect. There is always the danger one country could pull out," says structural biology coordinator Luis Serrano.

EMBL faced such a crisis in 1994 when Italy threatened to withdraw because it felt it was not getting sufficient return for its investment (*Science*, 16 December 1994, p. 1798). The plans to site the new facility at Monterotondo near Rome were drawn up partly to persuade Italy to remain a member. "It was a precedent, and decisions [on future EMBL policy] should not be forced by this," says Walter Fiers of the University of Gent in Belgium, a former advisory committee member.

Despite these inauspicious beginnings, the plans for Monterotondo have turned into an ambitious development. Alongside the four research groups EMBL plans to set up, Italian funding agencies will relocate some key research groups to the site, and the European Union is backing a new European Mouse Mutant Archive, which will hold stocks of the most important mutant mice for use in research. "We hope it will be a key center for mouse biology," says Walter Witke, a group leader in Heidelberg who will be moving his team to Monterotondo next month.

The Monterotondo center is the fourth outstation established by EMBL. In contrast to the Heidelberg headquarters, existing centers in Hamburg, Grenoble, and Cambridge act primarily as open facilities for the research community in areas not easily accessible at the national level. The Hamburg and Grenoble outstations help researchers exploit world-class radiation sources for structural studies. At Cambridge, the European Bioinformatics Institute (EBI), which arose from EMBL's nucleotide sequence data library, was donated buildings by Britain's Wellcome Trust and has attracted funds from the European Union, drug companies, and elsewhere.

The ability of outstations to attract local and international money is a powerful argument for spreading EMBL activity around member states. But it risks shortchanging core activities in Heidelberg. "It's just not quite so easy to keep in touch with what's happening at the EBI since the founders left Heidelberg," says one researcher. Although Kafatos says "it is essential to retain a critical mass [in Heidelberg]," there are signs of erosion in EMBL's facilities. "Things are not being replaced and some labs need to be fixed, but there isn't the money," says Karsenti.

EMBL OUTSTATIONS

Place	Founded	Staff	Function
Hamburg, Germany	1974	51	Uses synchrotron radiation at DESY particle physics lab for structural studies of proteins.
Grenoble, France	1976	56	Uses European Synchrotron Research Facility and the neutron source at the Institut Laue-Langevin for structural studies of proteins.
Hinxton, Cambridge, U.K.	1993	85	European Bioinformatics Institute provides a data library for DNA and protein sequences and develops new software to exploit the library data.
Monterotondo, Rome, Italy	1996	–	Will specialize in mouse genetics with access to the neighboring European Mouse Mutant Archive.

Asian Network Applies a Personal Touch

While European molecular biologists struggle to shore up support for the European Molecular Biology Laboratory (EMBL), their Pacific Rim colleagues are moving ahead rapidly with their own plans for multinational cooperation in the discipline. Organizers say they are encouraged by early signs of widespread support but that it is too early to declare victory. And they emphasize that they are years away from making a decision on whether to set up a central laboratory like EMBL.

The International Molecular Biology Network for Asia and the Pacific Rim (IMBN) was officially launched earlier this year at a meeting in Tokyo of life scientists from 20 institutes in the region (*Science*, 27 June, p. 1964). The network is seen as a way to foster the exchange of information, promote collaborations, and raise the level of molecular biology and related research throughout the region. This fall, it was endorsed by the industrial science and technology working group of the Asia-Pacific Economic Cooperation (APEC) forum, whose heads of state met last month in Vancouver. The support increases the network's credibility and opens the door to possible APEC funding.

Two weeks ago in Shanghai, the group firmed up its organizational structure and named Ken-ichi Arai, a molecular biologist at the University of Tokyo's Institute of Medical Science, as chair of a task force to coordinate activities. The fledgling group has already secured promises for more than $300,000 in seed money from regional institutions, and its leaders have begun to plan its inaugural conference.

Using the European Molecular Biology Organization (EMBO) as a model, Asian organizers expect to make changes to suit their needs on membership and funding. Unlike EMBO, IMBN will be an association of individuals rather than institutions or governments, and its officers will not be representatives of their home institutions. The difference is intended to ensure that scientists set priorities for the organization. Organizers intend to invite about 200 prominent scientists from Asia and the western Pacific to be founding members and to augment the roster slowly. A second category of full members, based on topflight research and service to the community, will be filled by tapping an international pool that includes scientists in the United States, Canada, Russia, and Latin America. A third category of associate membership will be open to all interested parties.

The group will seek funding from institutions, governments, companies, and individuals, says Gurinder Shahi, outgoing program director at the International Vaccine Institute in Seoul and head of IMBN's interim secretariat. The diverse sources are meant to free them from dependence on the "whims and fancies of [national] policies," Shahi says.

Even so, government support will be crucial, he says, and it is already starting to materialize. South Korea will provide money for a conference next June in Seoul, the first of what is expected to be a series of scientific meetings. Organizers admit, however, that the financial crisis sweeping the region could pose problems in the short term. One way to make themselves more attractive to governments, say organizers, is to emphasize the network's ability to deliver direct benefits to each participating country.

Toward that end, the group is planning a fellowship program for younger researchers to take leave from their home institution to learn a new technique or participate in a particular research project. Shahi says that many of the region's governments already have such exchange programs, and that tapping into them is likely to be more popular than getting governments to throw unrestricted money into a pot that would be spent to support researchers from many countries.

Such concerns also temper enthusiasm for a central research facility. Instead, the initial plan is to encourage supporting institutions to set aside space for IMBN within existing facilities. "Most of us feel the necessity of a central lab, but it is not a top priority at this time," says microbiologist Jeongbin Yim, director of the Institute for Molecular Biology and Genetics at Seoul National University and vice chair of the organizing task force. Adds Shahi, "It's much easier [for governments] to support activities within their own borders than outside their borders."

–Dennis Normile

EMBL

Middle ground. Boosting outstations brings in new money, but little of it reaches the Heidelberg headquarters.

And in spite of the relatively generous funding attached to an EMBL post, group leaders are increasingly dependent on grants to support their work. "If you want to start something new now, something old has to go," says geneticist Marek Mlodzik.

Kafatos has won approval from the EMBL council to continue the expansion of outstation activities, which will inevitably mean closure of some programs in Heidelberg because EMBL's total budget is tightly capped until 2000. He also secured backing for his plan to establish a new developmental biology program at Heidelberg, which will force further cuts. "EMBL is designed to be flexible and respond to changing scientific opportunities. We will still support our priorities as best we can," he says.

One of those priorities is to provide its young researchers with the credentials to secure positions in European universities and other institutions when their tenure at EMBL is over. But the harsh economic climate across Europe is making the move from EMBL increasingly difficult for some. The rigors of university life can lead to the "well-recognized post-EMBL depression," says one current EMBL researcher. "I'm well aware EMBL can be a golden trap," says another.

Despite its travails, EMBL researchers are confident that the lab's high-quality research and training will enable it to survive. There is growing interest from a number of East European countries, says Kafatos, and the European Union is becoming increasingly involved, with its partnership in the Monterotondo venture and funding for other EMBL activities. The European Union is also a major source of grant income for researchers, and it recently signed an administrative agreement for further collaboration. And demand for posts at EMBL and access to outstation facilities has never been higher. "It continues to prove the quality of its research and its essential role in education," says Fiers. "It should be an example for many other European institutions."

–Nigel Williams