
Science Policy News

EMBO 25 years on

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This year, 1989, marks the 25th anniversary of the European Molecular Biology Organization which was established in July 1964 with the goal of promoting molecular biology within Europe by fostering international collaboration. Since then EMBO has played a significant role in strengthening molecular biology in Europe. Over the past 25 years several thousand molecular biologists have been funded by EMBO short-term fellowships and long-term fellowships and many more have participated at EMBO lecture and practical courses, workshops and symposia. In addition, in 1982, EMBO launched the EMBO Journal and in that way has helped disseminate new data by the rapid publication of interesting results. EMBO's financial resources have always been modest. Its programs began in 1966 following the award by the Volkswagen Stiftung of a generous grant of DM 2,748,000. That grant allowed EMBO to begin its fellowship programs and course and workshop programs. By 1969, as the Volkswagen money ran out, scientists in EMBO had successfully lobbied European governments to agree to take over the funding of the EMBO programs and provide them with longer term support. As a result, in 1970 the European Molecular Biology Conference (EMBC) was established. Unlike EMBO which is a purely private scientific organization, in effect a European Scientific Academy, the EMBC is an intergovernmental body. Its members are the governments of Western European countries and also Israel. The 17 member countries of the EMBC vote an annual budget which they entrust to the EMBO to manage. In other words, the EMBO fellowships, courses and workshops are administered by a private scientific organization whose 650 members are eminent European molecular biologists, but these programs are funded by an intergovernmental organization. To clarify a common misapprehension, neither the EMBC nor the EMBO receive financial support from the European Community. The member states of the European Community, with the exception of Luxembourg and Portugal, are also members of the EMBC. But the latter also includes Sweden, Switzerland, Finland, Norway, Iceland, Austria and Israel which are not members of the European Community.

How much does the EMBC provide each year for the EMBO fellowships, courses and workshops? The budget is calculated in European accounting units (ECU); most of the member states, however, pay in their national

currency because EMBO is required to pay its fellows in the currency of the country they visit. The budget for 1989 is equivalent to DM 11.7 million. The scale of member state contributions is based upon a statistic called net national income at factor cost. This, basically, is the per capita income of each country multiplied by its population. The end result is a scale in which the large countries pay more than the smaller ones. The highest contribution is paid by the Federal Republic of Germany followed by France, Italy and then United Kingdom. Because of differences in population size, Spain pays a higher contribution than Switzerland.

By comparison with the budget of large individual laboratories in Europe, or national research councils, or the science programs of the European Community, the DM 11.7 million available to EMBO is very, very modest. Nevertheless, as the history of the organization has shown, a small amount of money judiciously used can yield large benefits. The DM 11.7 million a year allows EMBO to fund about 170 one-year postdoctoral fellowships, about 220 short-term fellowships each lasting for a maximum of 3 months and also to sponsor annually about 18 workshops and 18 to 20 courses. The practice of renewing most long-term fellowships for a second year means that about 90–100 rather than 170 new fellowships are awarded annually.

The short-term fellowships are restricted to exchanges between the member states of the EMBC; they are not awarded for transatlantic exchanges. The long-term fellowships on the other hand which are restricted to candidates who hold a PhD degree or its equivalent, can be held outside Europe. As a result, about 40% of EMBO long-term fellows are Europeans working in the USA. Unfortunately the limited budget prevents EMBO supporting graduate students who would like to work for their PhD in a European laboratory outside their own country. One of the striking differences between Europe and the USA is the fact that in Europe there is little mobility among young scientists before the postdoctoral stage. A graduate is not expected to move to another country to work for his or her PhD, and all too often they are encouraged to stay in the university in which they first graduated. At this level EMBO cannot contribute to the mobility of European scientists.

Over the past decade the number of applications for long-term fellowships has risen from about 235 in 1978 to 455 in 1988. The budget also increased over the same period but not commensurately. As a result these days the number of new applicants who are awarded an EMBO long-term fellowship has fallen below 33%. The

competition is strong and the selection, which is made by an international committee of 10 European molecular biologists, is stringent. The selection procedure in most cases involves an interview of the candidate by an EMBO member. Although the travel costs involved with these interviews are not trivial the interview procedure has proven its worth over many years. Fortunately EMBO has never operated or been asked to operate by the EMBC, which provides the money, a policy of just return. EMBO is not obliged to distribute geographically the fellowships in proportion to the ratio of financial contributions of the member states. That means that the selection can be based on the scientific merits of the candidates and not on their European nationality or the geographical location of the proposed host institute.

In contrast to the selection of long-term fellows, which is made at meetings of the selection committee in April and October each year, applications for short-term fellowships are refereed by post and decisions are reached within two months of receipt of the application; about 60% of the applications are granted. EMBO short-term fellowships are designed to meet the need for exchanges between European laboratories that arise at relatively short notice and allow well-defined specific collaborative projects of limited extent to be done quickly. Interestingly, over the past decade while the demand for long-term fellowships has consistently risen every year, there has been a decline in the demand for short-term fellowships which, however, showed signs of being reversed in 1988. It is difficult to explain this decline from 360 applications in 1980 to about 300 in 1987; some argue plausibly that it is because expertise in major techniques such as gene cloning, production of monoclonal antibodies and so on, is now widely distributed in Europe whereas 10 years ago that was not the case and those wishing to learn these techniques used EMBO short-term fellowships to travel to laboratories that had them.

Well over two thirds of the EMBO budget is devoted to the fellowship programs. The remainder goes to the course and workshop program and the EMBO annual symposium. EMBO funds workshops, not large conferences. The workshops usually have about 50–60 participants and their aim is to allow discussion of particular focused areas of molecular biology by small groups currently in the forefront of that particular area. EMBO continually fights the tendency for workshops to grow ever larger and evolve into conferences or symposia. Some EMBO workshops stem from initiatives and proposals of the course and workshop committee but the majority are selected by that committee from unsolicited applications. As a matter of policy EMBO does not give its imprimatur to courses or workshops that it does not also support financially. Requests to add EMBO's name to advertisements for courses or workshops that are entirely funded by other agencies are always declined. That does not mean that EMBO refuses to co-sponsor activities with other funding agencies; far from it, but EMBO

does not let its name be used to add cachet to activities of other bodies.

EMBO's current policy is to give much higher priority to advanced practical training courses in which usually less than 20 participants are taught experimental techniques with most of the course time being spent at the bench, rather than at lecture courses. Organizing a practical course at this level for say a dozen students lasting ten days or two weeks is hard work and can disrupt transiently the research of the host laboratory and in particular that of the group giving the course. The number of groups volunteering to organize such courses is as a result small. To make the program succeed the committee has to identify topics and potential organizers and then try, one way or another, to persuade them to organize the course. Naturally EMBO provides a budget to cover the cost of materials and some of the travel costs involved but as a matter of policy the academic teaching staff are not paid a fee or honorarium; they provide their services free for the good of the cause. The fact that each year EMBO supports 16–18 practical courses proves the scientific community in Europe accepts this mutual responsibility. Practical courses are a very efficient and cost effective way of disseminating new techniques and the demand for places in them is often truly amazing. It is not uncommon for organizers of courses on topics such as site-directed mutagenesis or advanced gene cloning methods to be faced with 200 or more applications for the dozen or so places.

Many of the EMBO practical courses, as well as the annual EMBO symposium (the only symposium which EMBO supports) are held at the EMBL in Heidelberg. The EMBO secretariat is also housed at the EMBL. The reasons for the close links between EMBO and EMBL are historic. When EMBO was established in 1964, one of its plans was to establish a European molecular biology laboratory. Bringing about EMBL took 10 years; the laboratory only achieved its legal existence in 1974. It is currently supported by 14 of the 17 countries belonging to the EMBC and supporting EMBO. In the strictly legal sense EMBL is quite distinct and separate from both the EMBO and the EMBC; however, in practical terms there are many links between the two. The EMBO council for example is responsible for proposing names of members to be appointed to the Scientific Advisory Committee of EMBL by the governments which support EMBL and constitute the EMBL Council. The EMBL and the EMBO collaborate in offering practical courses and of course the EMBL is the home of the EMBO symposium, EMBL also provides an editorial office for the EMBO Journal.

What lies ahead for EMBO? The fellowship, course and workshop programs have over the past 25 years proven their worth. They have shown how a small amount of money carefully spent can greatly strengthen molecular biology in Western Europe. Perhaps the program has been successful because it is small and has not therefore

attracted the attention of political masters. The program, of course, relies on national infrastructures. Basically, all EMBO provides is travel and subsistence costs – be they to an individual for a year's postdoctoral fellowship or for a 3 month short-term fellowship, or to individuals to travel to EMBO workshops and EMBO courses. At least in the foreseeable future the mix should stay as it has been in the past. Why change a successful recipe? The EMBO will, however, mount a campaign to try and increase the funds available for long-term fellowships. As things now stand excellent candidates have to be refused a fellowship simply through lack of funds and it is EMBO's hope that, as Europe makes increasing efforts

to unite economically and in other ways, it will be able to persuade national governments to increase the budget at least for the long-term fellowship program. At present the governments of 17 of the richest countries in the world contribute 11.7 million DM for the EMBO programs. Is a 10–15% increase, which would go a very long way to satisfying the long-term fellowship demand, too much to ask for?

[In this issue's *Announcements* section (p. 596), the reader will find the 1989 listing for EMBO Workshops and Courses.]