
Science Policy News

European Molecular Biology Laboratory: Excerpts from the Annual Report for 1988

From the Introduction by the Director General, L. Philipson, highlighting recent important developments

Dissection of intracellular transport. Two new groups have started to work in The Cell Biology Programme focusing on the dissection of endocytosis in mammalian cells. One group is utilizing vesicle separation by affinity chromatography on magnetic beads which have been developed at the EMBL. The second group will provide techniques to study the important protein-protein recognition events which must guide the sorting machinery.

Haematopoietic differentiation. The Differentiation Programme has contributed significantly to the understanding of the role of several *onc* genes in arrest of haematopoietic differentiation and identified several discrete events in the differentiation pathway. A bridge between studies on haematopoietic differentiation and embryonic development was established when it was demonstrated that the leukemia inhibitory factor (LIF), polypeptide factor capable of inducing the differentiation of the myeloid leukemic cell line MI, is able to maintain the pluripotency of embryonic stem cells. LIF is probably identical to the 'differentiation inhibitory activity (DIA)' and shows that the same protein can act as an inducer or repressor of differentiation, depending on the cell type.

Polymorphic and polyfunctional transcription factors. Remarkable progress in the understanding of basic mechanisms responsible for the regulation of tissue-specific gene expression has recently been recorded. At the EMBL the Gene Expression Programme has specialized in the factors involved in transcription of liver-specific genes, and of genes involved in making small nuclear RNA. Some of the factors governing liver-specific gene expression are only present in liver tissue while others appear to be ubiquitous. At the end of the year two important transcription factors essential for liver-specific expression were cloned as cDNAs. Since they can be overproduced in a recombinant expression system and since the DNA sequences recognized by the proteins have been identified, these DNA protein complexes may be attractive targets for structural analysis.

Structure of membrane proteins. A fragment from the bacterial pore-forming protein Colicin A was shown to possess pore-forming properties similar to those of the entire molecule. The structure of the fragment was determined by the Biological Structure Programme to high resolution revealing that the pore-forming domain consists of 10 alpha-helices organized in a three-layer structure.

Yeast as a genetic tool for mammalian cells. In the Cell Biology Programme one group is using yeast to identify the proteins involved in nuclear transport and cell cycle regulation. In the Biological Structures Programme one group is studying the proton pumps of yeast and comparing them to similar systems in mammalian cells controlling the intracellular pH. In the Gene Expression Programme fission yeast is used to analyze the detailed structure and function of the U snRNP proteins. In the Differentiation Programme suppressors of temperature-sensitive mutations in *ras* oncogenes and adenylate cyclase in yeast over-express a protein kinase structurally related to mammalian protein kinases.

Role of the EMBL in the human genome project. If the EMBL were to make a major contribution to the human genome project at least half of the EMBL's present capacity would have to be reserved for this purpose. Such a proposal would cripple EMBL's role in basic science. On the other hand EMBL has a responsibility to participate in the international coordination of the data banks, and will therefore in 1989 launch the European Molecular Biology network (EMBNET) to help in the dissemination of sequence and related information, as well as in the interaction with the Member States over national nodes. EMBL will, in addition, attempt to establish a European node for both the genomic and the physical maps since the US bodies, currently servicing these maps, would like to have a European collaborator. In the very long-term future it will be necessary to establish a European Institute of Bioinformatics. In the opinion of the EMBL there must be a strong representation of the basic science interest in such an institute, to prevent domination by the commercial and applied interests. Finally the EMBL has already started developing prototypes of robots for DNA extraction, multiple oligonucleotide synthesis and fluorescent DNA sequencing that are about to become commercially available.

Finance

Overview of income and expenditures over the five-year period 1984–1988:

Total income increased by 20%. The contributions of the Member States increased by 30% because of the contributions and entrance fees of four new Member States, modest net growth and the agreed inflation rates. The relative reduction of other income (– 15%) during the same period is mainly due to the downward trend of interest rates.

- For 1988, income totaled DM 56.1 million, of which DM 47 million came from Member State contributions. The total expenditure of DM 55.1 million consisted of personnel costs (DM 32.6 million), operating costs (DM 14.7 million) and capital expenditure (DM 7.8 million).

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United States: The Visiting Program of the National Institutes of Health: Stipends for 1990

The NIH Visiting Program provides scientists throughout the world the opportunity to share in the varied resources of the National Institutes of Health. Through this program, scientists at all levels of their careers are invited to the NIH to receive further experience and conduct collaborative research in their biomedical specialties.

There are three categories of Visiting Program participants: Visiting Fellows, Visiting Associates and Visiting Scientists. Each participant works closely with a senior NIH investigator who serves as sponsor or supervisor during the period of award or appointment.

Visiting Fellow Awards

The Visiting Fellow award is for advanced research training experience at the NIH. Visiting Fellows must have a doctoral degree or its equivalent in the health sciences and not more than three years of postdoctoral research experience when the fellowship begins. Upon nomination for the program, candidates must provide a photocopy of their degree or a letter from a university official stating when the degree will be awarded. Course work toward a degree does not qualify a candidate for a fellowship. During the fellowship period, Visiting Fellows may not hold outside employment or accept assignments away from their NIH sponsors. Visiting Fellows may be resident or nonresident aliens. U.S. citizens are not eligible for the Visiting Fellow award.

Length of fellowship. Visiting Fellows receive an initial award for one or two years. The fellowship may be renewed for up to three years total. Renewals are based on merit and are subject to approval by the Director of the NIH and the Immigration and Naturalization Service.

Stipends for Visiting Fellows are based on the number of years of postdoctoral experience a candidate has when the fellowship is awarded. Current stipend levels, effective October 1, 1989, are:

- \$25,000 for less than one year of postdoctoral experience;
- \$26,500 for one to two years of postdoctoral experience;
- \$28,000 for two to three years of postdoctoral experience;

Visiting Fellows are paid at the beginning of each month. For each year the fellowship is continued, the stipend is increased by \$1,500.

Visiting Associate and Visiting Scientist Appointments

Visiting Associates and Visiting Scientists are appointed to conduct health-related research. Because they perform services, they are considered employees of the NIH. Visiting Associates and Visiting Scientists must have a doctoral degree or its equivalent. In addition, Visiting Associates must have 3 to 6 years of postdoctoral research experience, and Visiting Scientists must have 6 or more years of postdoctoral research experience.

Length of appointment. Visiting Associates' and Visiting Scientists' appointments are for an initial 12- or 13-month period. Appointments may be renewed, but the total length of an appointment may not exceed 4 years and is subject to visa restrictions.

Salaries for Visiting Associates and Scientists are based on each candidate's qualifications. Current salary levels, effective October 1, 1989, are:

- \$23,846 to \$44,957 for Visiting Associates;
- \$34,580 to \$75,500 for Visiting Scientists;

Salaries may be increased when appointment is continued. Salary increases are based on the following formula:

- \$1,000 if the participant is achieving the research goals and objectives set at the time of the appointment;
- \$1,500 if the participant is significantly exceeding the research goals set at the time of appointment;

Visiting Associates and Scientists are paid every two weeks.

How to Apply

An award or appointment to the Visiting Program must be requested by a senior investigator in one of the NIH's laboratories. This investigator serves as the participant's sponsor or supervisor during the period of appointment. Anyone interested in a Visiting Program fellowship award or appointment should send a resume and brief description of research interests to individual NIH senior staff scientists who are working in the fields of the applicant's research interest. These investigators are listed in the Scientific Directory and Annual Bibliography, which is published each year by the NIH and is generally available in many libraries throughout the world. A copy may be requested from:

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