

Advances in Gene Technology:
Molecular Genetics of
Plants and Animals

Edited by
Kathleen Downey
Richard W. Voellmy
Fazal Ahmad
Julius Schultz

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ADVANCES IN GENE TECHNOLOGY:
MOLECULAR GENETICS
OF PLANTS AND ANIMALS

edited by

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PREFACE

This twentieth volume of the Miami Winter Symposia continues the theme that we established in 1977 of focusing year-by-year on a timely aspect of the new technologies of genetic experimentation and bringing together an international roster of speakers for the benefit of the truly international audience that now frequents our meetings. For January 1983, our panel of speakers was drawn from the United States, the United Kingdom, Switzerland, the USSR, Belgium, Canada, Australia, and the Federal Republic of Germany. The audience was drawn from a wider spectrum of nations than has ever before attended our symposia: twenty-six in all and from all continents, including China, Vietnam, and, for the first time, scientists from Cuba. Considering that our theme was the application of the new gene technology to agriculture, the attention that the symposium commanded was perhaps not altogether surprising.

The tone of the symposium was set by the keynote speaker, the Feodor Lynen Lecturer, Nobel Laureate Melvin Calvin, whose address is included as the first presentation in the volume under the title "The Path of Carbon: From Stratosphere to Cell." Calvin received the supreme accolade of science for unraveling the photosynthetic fixation of carbon and has gone on to pioneer other directions in plant biochemistry, which have every promise of emerging as practical applications of biotechnology.

The symposium began with a discussion of the organization of the plant genome, proceeded to techniques for cell culture, regeneration, and somatic cell fusion, followed by descriptions of vector systems and nitrogen fixation. The presentations in the vector system section were publicized nowhere more rapidly than by the national press—the next day the Washington Post and the Wall Street Journal announced the breakthrough in the transmission of genetic information into plants, now reported here in full.

The meeting then turned to practical applications of gene technology to plants and, in the concluding part of the week, to technology frontiers in animal biology, in particular embryonic development and vaccines and diagnostic methods for animal diseases. As in the case of the 1982 symposium, the meeting ended with a panel discussion, this one concerned with horizons in agricultural research organized by Ralph W. F. Hardy, Vice President for Life Sciences at DuPont, to whom we are most grateful.

There were two "satellite" events to the symposium. The first meeting of the International Plant Molecular Biology Association took place in the two days preceding the symposium. We were pleased to be able to help launch this new Association and wish it success in the future. The other meeting was a DNA Sequencing Workshop staged by Bethesda Research Laboratories, who also helped materially with the symposium itself by sponsoring the Lynen Lecture.

It was a pleasure once again to see that within the symposium audience of more than 600 was the usual strong representation (25%) of graduate students drawn from across the North American continent and to see the excitement and enthusiasm generated in these scientists of the future as they come to hear and meet the leading practitioners of a major sector of biological research that is progressing with unprecedented speed. We quite deliberately keep the student registration fee for the symposia at a nominal amount, which is subsidized by other registration fees and other sources of income such as derived from the exhibitors.

The symposia organization has now become a smooth-running machine led by a committee chaired by our faculty colleague Thomas R. Russell, and managed in large measure by our administrative colleagues Sandra Black and Olga Sanchez (Department of Biochemistry of the University of Miami) and Julio Carballo (Papanicolaou Cancer Research Institute).

In addition to the income generated by the registration fees and exhibits, the symposium receives financial assistance from the following organizations, to whom we express our grateful thanks: Abbott Laboratories; All Ways Travel Agency; Beckman Instruments, Inc.; Bethesda Research Laboratories; Cetus Corporation; Eli Lilly and Company; Hoffman-La Roche, Inc.; Merck Sharp and Dohme Research Laboratories; Schleicher and Schuell, Inc.; Smith Kline and French Laboratories; Graduate School, University of Miami; and Office of the Dean, University of Miami School of Medicine.

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**ADVANCES IN GENE TECHNOLOGY:
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