

TRANSGENIC ANIMALS IN AGRICULTURE

Transgenic Animals in Agriculture

Edited by

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Preface

This volume represents the majority of the papers on the application of transgenic animals for use in production agriculture that were presented at a meeting held during August 1997 at the Granlibakken Conference Center in Tahoe City, California. In many cases, the papers have been updated to reflect research published up to the time of writing (June 1998). The impetus for this meeting came from the realization that it had been several years since a meeting had been held that was both this focused, i.e. limited to transgenic applications for animal agriculture, yet inclusive of work on fish, birds and mammals. As many of the problems faced when doing research involved with the transgenic manipulations of vertebrates are universal, such as the attempts to isolate embryonic stem cells or constructing an efficient expression vector, much benefit was gained by the interactions of scientists working with different species who were able to attend this meeting. It is our hope that the sphere of individuals benefiting from this meeting will be greatly expanded by the publication of this volume.

Our colleague Dr Robert Wall (USDA-ARS Beltsville, Maryland) often states that the field of transgenic large animals is one of the few fields in modern science where there are more review papers than data papers. This volume may seem a bit uneven as well, as it is a mixture of review papers and primary data papers. However, in many cases the leading-edge research reported at this conference, such as nuclear transfer-based cloning (Chapters 5 and 6) or the work on the integration of a transgene into a selection experiment (Chapter 16), represents such recent advances that these papers are some of the first to be written in the area. Other papers, however, are more comprehensive reviews of the information pertaining either to specific technical areas, e.g. sperm-mediated gene transfer (Chapter 7), or the

targeted application of transgenes to a specific species, such as the use of growth hormone constructs in fish (Chapter 15) or the attempts to transfer two genes in a biochemical pathway to alter the intermediary metabolism of mammals (Chapter 12). In each chapter, we hope to convey to the reader a better understanding of the possibilities and limitations of the current state of our art and the excitement of the participants at this meeting as we try to apply transgenic technology to help improve the animals used in agriculture.

Finally, as editors and organizers, we need to thank those people other than the speakers and authors who gave freely of their time to assist us in bringing together first the conference and now this volume. A brief list includes Robert Devlin, James Petitte, Carl Pinkert, Caird Rexroad Jr and George Seidel, who helped us to plan the scientific programme and to identify speakers. We also extend our thanks to a large number of anonymous referees who provided the peer review for each manuscript and in so doing provided valuable comments to both the authors and to us. The conference, and thus this volume, would not have been possible without financial support from the University of California, Davis, grants from the University of California Systemwide Biotechnology Research and Education Program and the USDA-CSREES, and contributions from the following corporate sponsors: Bayer Pharmaceuticals, Wyeth-Ayerst Laboratories, Perkin Elmer ABI, Biogenics, Metamorphix, PPL Therapeutics, Pharming B.V., Genzyme Transgenic Corporation and BioTime Corporation. This book would never have been finished without Randy Cook's unflagging assistance in helping to pull it all together. Finally, we would like to acknowledge Mr Tim Hardwick from CABI *Publishing*, both for his encouragement to undertake the preparation of this volume and his patience as time went by.

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