

Preface

Although only about 3 years have passed since the preparation of the original manuscript of this book for the Russian edition, the number of successful experiments on somatic hybridization of higher plants has doubled. Although the main inferences of the first edition still remain in force, most of them have received conclusive experimental support and, moreover, some new conclusions have been drawn. It can be expected that these inferences and conclusions will constitute a more or less durable foundation for somatic cell genetics of higher plants. We thus hope this book will also remain useful over the next years, in spite of the rapid progress of experiments and the increase in the number of scientific reports in this field.

Though it might appear strange to an uninvolved observer, the principal progress in hybridization of somatic cells of higher plants has been due to plant physiologists (who entered the field by elaborating methods and techniques for plant cell and, later, for isolated protoplast culture) rather than plant geneticists. However, further qualitative improvement in this field is inconceivable without the instillation of genetic ideology and the strict logic of genetic experiments. The main purpose of this book is the attempt to organize the available experimental data in terms and categories of genetic analysis. For this reason, this book lays no claim on being a comprehensive treatise on somatic hybridization. The consideration of the principally genetic aspects of somatic hybridization seemed indispensable to us, thus, numerous important questions of physiology of protoplasts and hybrid cells are not discussed. Although we tried to include all of the significant studies in this field, not all of the available literature has been cited. Unfortunately, the unnecessary publishing of the same results several times (in a scientific journal, then in proceedings of congresses or symposia, and then in combination with other data, etc.) is very widespread. Therefore, we have attempted to cite the same data only once.

We are aware that this book is subjective to a certain extent and we apologize beforehand to our colleagues whose works are cited perhaps less frequently than they merit. In describing the experimental data, we have given preference to the works of those colleagues whose investigations were known to us not only from

published reports. Similarly, our own data have been reported in more detail. It is easier to discuss and critically analyze data which are better known. As was mentioned earlier, this book represents a geneticist's point of view and the conclusions herein may therefore appear to be at odds with the view of those dealing with somatic cell hybridization in higher plants (mostly physiologists or sometimes "culturists").

Certainly, we bear complete responsibility for the possible successes and, first and foremost, for all failures of this book. However, it should be acknowledged that the appearance of this book is the result of the work of many people. This book is rather profusely illustrated and contains the illustrations from the works of numerous investigators. We wish to thank Prof. G. Melchers, Dr. K. N. Kao, Dr. K. Glimelius, Dr. L. R. Wetter, Dr. L. C. Fowke, Dr. F. Constabel, Dr. O. Schieder, Dr. L. Menzel, Dr. V. A. Sidorov, and Dr. F. Nagy for their kind permission to incorporate their illustrations into this book and for providing the originals of these illustrations.

Dr. V. A. Sidorov kindly read the manuscript and we are thankful to him for a number of valuable remarks.

This book would not have appeared without the work of the editor of Springer-Verlag, Dr. R. L. Shoeman, who revised and completely rewrote the English text.

We would also like to express our gratitude to our colleagues and collaborators for their tremendous help in the preparations of the manuscript and especially to M. N. Moskalenko, I. F. Kanevsky, and V. P. Momot.

Y. Y. GLEBA

K. M. SYTNIK