
Preface

Plastids of higher plants are semi-autonomous organelles with a small, highly polyploid genome, their own transcription-translation machinery and metabolism suitable for engineering by targeted transformation. Tractable metabolic pathways include photosynthesis, starch, amino acid, lipid, and pigment biosynthesis. Transformation of the plastid genome was achieved in 1988 for *Chlamydomonas reinhardtii*, a unicellular alga, and 1990 in tobacco, the first of several higher plants accessible with this technology. This volume presents the relevant background for understanding and applying Chloroplast Biotechnology and step-by-step instruction by experts to facilitate entry into plastome engineering of plants. Detailed chapters include protocols that have been successfully applied to tobacco, crop plants (tomato, petunia, potato, eggplant, lettuce, soybean, cabbage, sugar beet and alfalfa), *Chlamydomonas* and avascular plants Bryophytes (*Physcomitrella patens*, *Marchantia polymorpha*). This book will be useful for all interested in fundamental chloroplast molecular biology as well as applications in agriculture, industrial biotechnology and healthcare.

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