Direct Gene Transfer into Mature Seeds
Via Electroporation
For Seeds of Rice Plant, Wheat and Barley, Silk Worm, Yeast, etc using
Vacuum & Electrical Pulse

1. Starting materials are mature seeds.
2. Transformed plants are obtained in relatively short time.
3. Plant tissue culture is not necessary.
4. Possibly applicable to animal cells and microorganisms.

Basic Method
1. Soak mature seeds in water overnight.
2. Transfer the seeds into electroporation buffer.
4. Electroporation on ice.
5. Incubate the seeds on ice for a few hours.
6. Grow the plants under the favorable conditions.
7. Select the transformed plants using antibiotics.

Vacuum Chamber & CUY21EDIT
Chamber: CUY495P10
Electroporation on ice

Fertile transgenic plants were regenerated and self-fertilized seeds were obtained in rice and wheat. Transgene integration was confirmed by Southern hybridization. Transmission of the transgene into the next generation (T₁) was indicated by PCR analysis. Transient gene expression was observed in several plant species and silk worm eggs.

No Need for Tissue Culture
No Particular Know-How or Skill required
Large reduction in handling and labour
● Simple
● Efficient
● Low-Cost

GUS gene expression reference (Wheat)

Geneticine Selection of Rice Seeds and/or Seedings

Not Transformed
npt II gene introduced

Next Generation (T1) Individual (Rice Plant)
Direct Gene Transfer into Mature Seeds
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Production of Transgenic Wheat

Gene transfer into Silk Worm Egg

GUS Gene Expression
Selection by Geneticin
Transformed Plants

Transient GUS Gene Expression

GFP Expression (Fluorescence)

Rice (japonica)  Rice (indica)  Brassica  Soybean

Plant Genetic Engineering Unit, National Institute of Agrobiological Sciences; Takashi Hagio
*Improvement research is in progress in Dr. Hagio’s laboratory.

SONIDEL Limited
TEL: ++353 (0)1 4434358
Email: sales@sonidel.com
FAX: ++353 (0)1 6865462
http://www.sonidel.com