

Recombinant DNA Technique for *Spirulina platensis*

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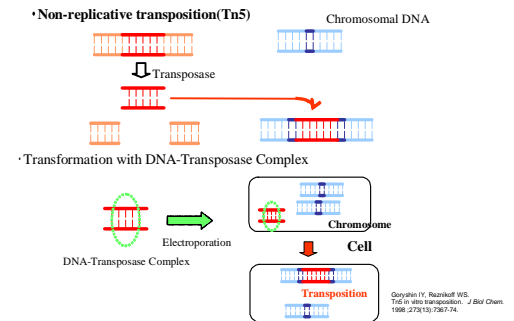
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***Spirulina platensis* is one of the most commercially important species of microalgae.**

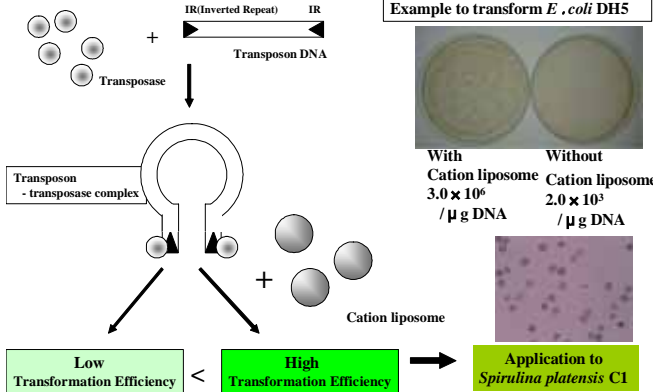
- Over 3000 metric tons are produced annually, \$40+ million in annual sales.
- Presently the subject of extensive research for use as nutritive supplement, medicine, space food...

We have developed new transformation system for *Spirulina* using Tn5 transposon, transposase, and cation liposome.

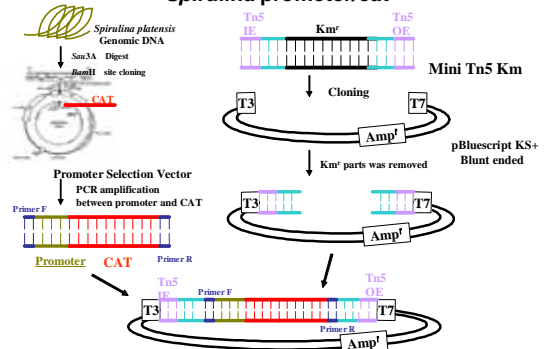
Transformation with DNA/transposase complex



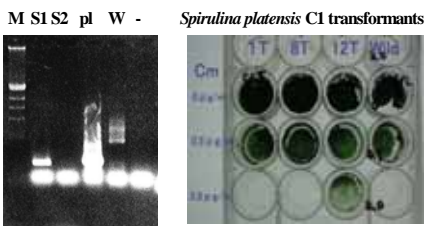
Transformation transposon complex with cation liposome



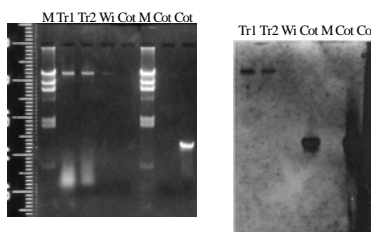
Construction of Mini-Tn5 transposon with a *Spirulina* promoter/cat



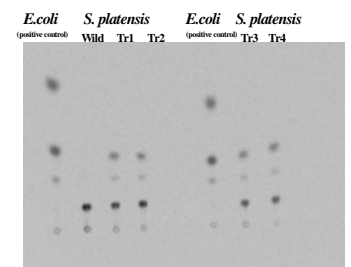
PCR analysis of the *cat* gene in *Spirulina* transformants after two months



Southern blot analysis of *Spirulina platensis* C1 Transformant



Cat Assay analysis of *Spirulina platensis* C1 Transformant



We developed new high electro-transformation methodology using Tn5 transposon, transposase, and cation liposome complex. We got stable transformed cells for more than a year. These results represent the initial stages of the development of a stable recombinant DNA for *S. platensis* C1.

The stable genomic transformation technique would contribute for better composition of valuable chemicals as γ -linoleic acid, phycocyanine, etc.

This technique of stable genomic transformation should be applicable to other cyanobacteria and bacteria.

Y. KAWATA, S. Yano, H. Kojima and T. Masaaki, "Transformation of *Spirulina platensis* strain C1 (*Arthrospira* sp. PCC9438) with Tn5 transposase-transposon DNA-cation liposome complex", MARINE BIOTECHNOLOGY, Vol 6, pp.355-363, 2004