

Applications:

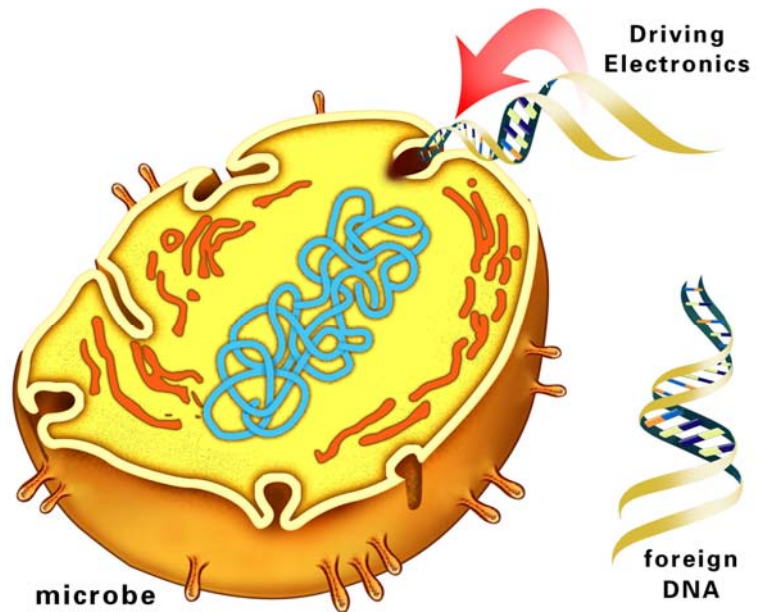
- Designer microbes by genetic engineering for broad fields of R & D in biology, such as bioenergy, industrial bioprocessing, pharmacology, biomedical science, to name a few.
- High-throughput gene transfer to microbe isolates or communities

Advantages:

- Universal method for gene transfer – transforming the untransformable
- Simple, quick and safe to perform
- Require no expensive equipment
- Minimal, sometimes no steps of pre-treatment of cell culture
- Amenable for high throughput performance

Contact:

Russ Miller
Oak Ridge National Laboratory
P.O. Box 2008, Mail Stop 6196
Oak Ridge, TN 37831
(865) 574-8746
millerr@ornl.gov
www.ornl.gov/tted/



Summary

Technology Description

This technology achieves gene transfer in gram positive microbes by a mechanical method that permeabilizes cell membrane to allow for entry of foreign DNA or other small molecules. The technology negates the usually error-prone steps of pretreatment of microbes and is largely independent of microbial types, which enables the success of DNA transformation into microbes previously intractable for genetic engineering.

Technology Application

Genetic engineering using recombinant DNA technologies, either the addition of foreign genes to an organism or modification of existing genes, has empowered new, desirable traits. Its success relies on a first-step prerequisite: DNA transformation. This technology might potentially be applied to any microbe or microbial community for genetic modification.

Stage of Development: Proof of Principle – the technology is established in a diversity of gram positive bacteria including several previously untransformable ones and can be extended to other kinds of microbes.

Patent Status: Invention Disclosure submitted, in review

Licensing Status: Available for licensing