FACULTY OF ENGINEERING &TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

AGROBACTERIUM MEDIATED GENE TRANSFER

➢ *Agrobacteria* are a group of Gram-negative, non-spore-forming soil bacteria, often isolated from abnormally proliferating plant tissues.

➢ Agrobacterium is known as genetic engineer and causes crown gall or hairy root diseases in plants.

➢ In the late 1970s, it was discovered that the plant phenotypes induced by *Agrobacterium*, crown gall or hairy roots, were due to the transfer of a particular DNA segment, called the transferred (T)-DNA, from the bacterium into the plant cell.

➢ Once stably integrated in the plant genome, the T-DNA element encodes
(1) plant hormones that result either in undifferentiated tumors or root proliferation,
(2) opines. Opines are sugar amino acid conjugates that *Agrobacterium* specifically catabolizes

There are two types of species of *Agrobacterium*
1.Agrobacterium tumifaciens (causes infection in wounded stem part of plant)
2.Agrobacteriumm rhizogenous (Cases infection in root of plant)

➢*Agrobacterium tumifaciens* and *Agrobacteriumm rhizogenous* bacteria have ability to cause tumors in the plants due to presence of Ti plamid and Ri Plasmid
Ti Plasmid (Tumor inducing) Plasmid
Ri Plasmid (hairy root inducing plasmid)

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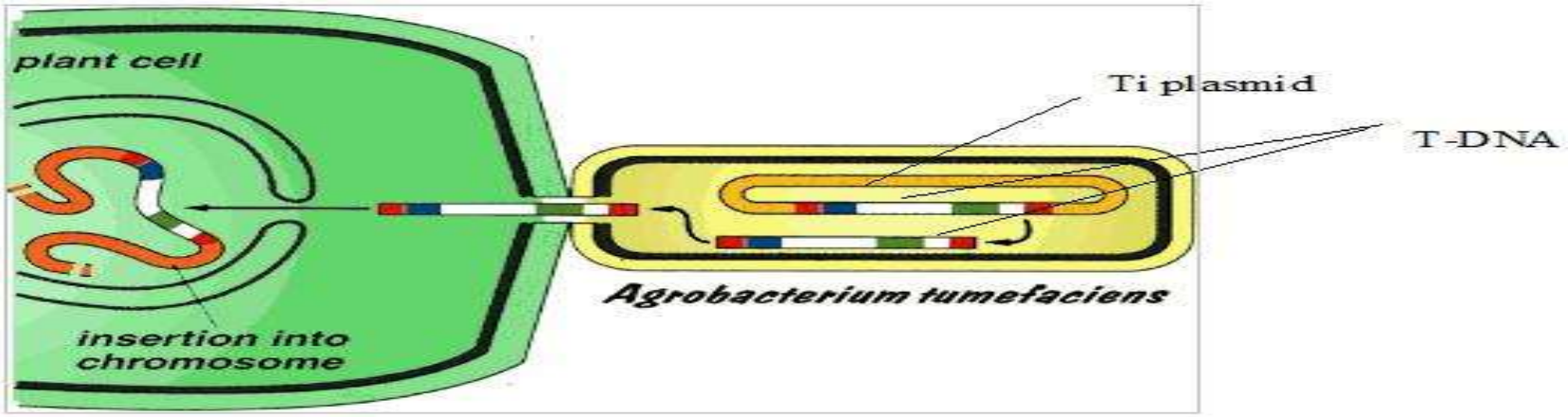

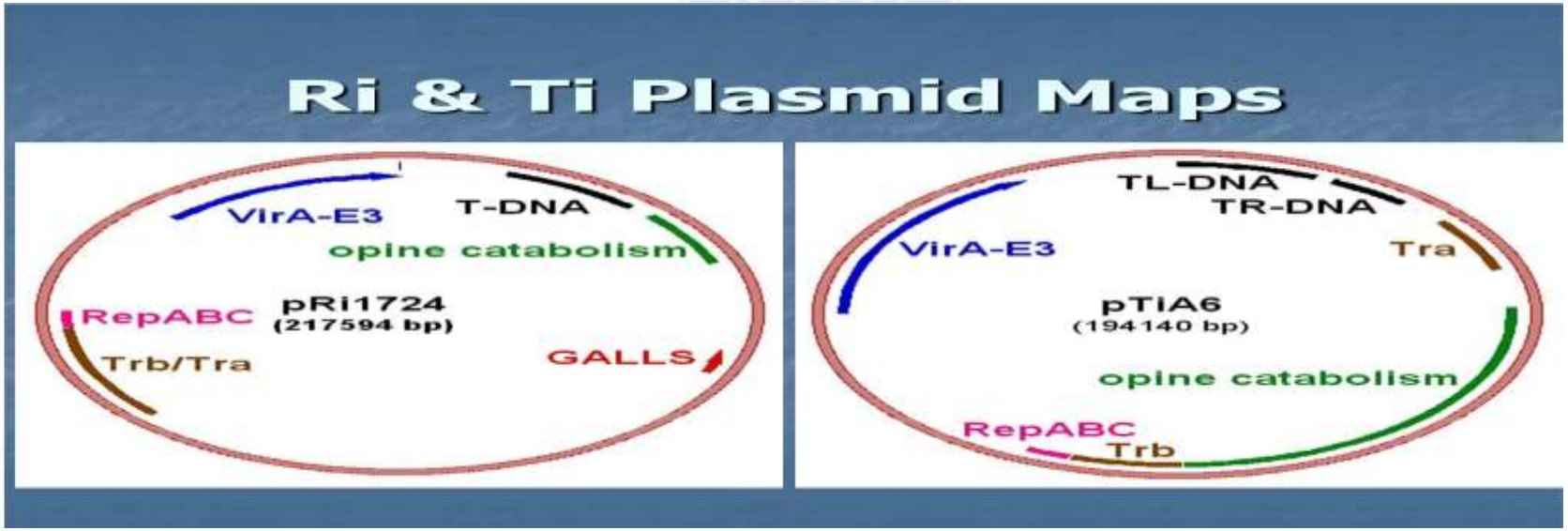

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