Important Points

- Alternative selectable markers have been developed which differentiate recombinant from non-recombinants on the basis of their ability to produce colour in the presence of chromogenic substrate. In this, a recombinant DNA is inserted within the coding sequence of an enzyme (3-galactosidase. This results into inactivation of the enzyme, which is referred to as insertional inactivation. The presence of chromogenic substrate give blue coloured colonies of the plasmid in the bacteria does not have an insert. Presence of insert results into insertional inactivation of the galactosidase and the colonies do not produce any colour, these are identified as recombinant colonies.
- A hybridization probe is a fragment of DNA of variable length which is used in DNA samples to detect the presence of nucleotide sequence (the DNA target) that are complementary to the sequence in the probe. The probe hybridize to single-stranded DNA whose base sequence allow probe target base pairing due to complementarity between the probe and target.
- Direct gene transfer is the transfer of naked DNA into plant cells but the presence of rigid plant cell wall acts as a barrier to uptake. Therefore protoplasts are the favoured target for direct gene transfer. Polyethylene glycol mediated DNA uptake is a direct gene transfer method that utilizes the interaction between polyethylene glycol, naked DNA, salts and the protoplast membrane to effect transport of the DNA into the cytoplasm.
- Plants developed by genetic engineering are called transgenic plants or genetically modified crops from which genetically modified food is produced. For their production micro-organisms (bacteria, virus) are used. So, by consuming them there is a danger of entry of viruses and toxins causing different types of allergies and other health hazards to human beings.
- Escherichia and Agrobacterium are both used as vectors in genetic engineering. Nitrobacter converts nitrites to nitrates. It is a free living nitrogen fixing bacteria. Nitrosomonas converts ammonia to nitrite. Rhizobium is a symbiotic nitrogen fixing bacteria living in the root nodules of leguminous plants. Diplococcus pneumoniae causes pneumonia.