Steps involved in invivo:

- In vivo method of gene transfer involves the transfer of cloned genes directly into the Tissues of the patient.
- This is done in case of tissues whose individual cells cannot be cultured in vitro in Sufficient numbers (like brain cells) and/or where re-implantation of the cultured cells in The patient is not efficient
- Liposomes and certain viral vectors (adeno or retrovirus) are employed for this purpose because of lack of any Other mode of selection.
- In case of viral vectors such type of cultured cells were often used which have been Infected with the recombinant retrovirus in vitro to produce modified viral vectors Regularly.
- These cultured cells will be called as vector-producing cells (VPCs)). The VPCs transfer the gene to surrounding disease cells
- . The efficiency of gene transfer and expression determines the success of this approach, Because of the lack of any way for selection and amplification of cells which take up and Express the foreign gene

Basic components of plasmid:

- Orgin of replication
- cDNA with intron sequences

