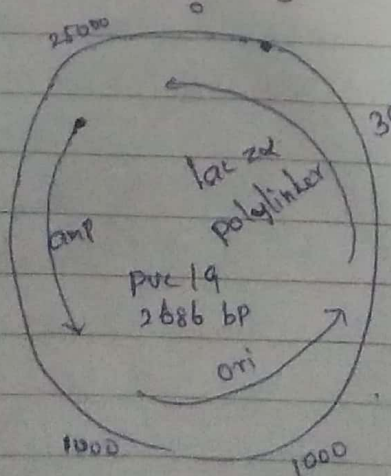
PUC 19

PUC19 is one of a series of plasmid cloning vectors created by joachim Messing and co-workers The designation "puc" is derived from the classical "p" prefix (denoting plasmid) and the abbreviation for the university of california, where early work on the plasmid series has been Conducted.

It is a circular double stranded DNA and has 2686 base pairs.

PUC19 is one of the most widely used vector Molecules as the recombinants, or the cells into which foreign DNA has been introduced, Can be easily distinguished from the non-recombinants based on color difference of colonies on growth Media.

PUC18 is similar to PUC19, but the MCS region is reversed.



puc 19

Function:

This plasmid is introduced into a bacterial cell by a process called: "transformation". Where it can Multiply and expresss it self.

Only the cells with the plasmid containing the ampicillin resistance (Amp^R) gene will survive.

Mcs and several restriction sites, a foreign piece of DNA of choice can be introduced into it by inserting it into place in Mcs region. The cells which have taken up the plasmid can be differentiated from cells which have not taken up the plasmid by growing it on Media with ampicillin.

Compounds:

The lac z fragment, whose synthesis can be induced by IPTG, is capable of intra-allelic complementation with a defective form of β-galactosidase enzyme encoded by host chromosome (Mutation lac ZDM15 in E.coli JM109, DH5α and XL1-Blue Stains).[a] In the presence of IPTG in growth Medium, bacteria Synthesise both fragments of the enzyme. Both the fragments can together hydrolyse x

gal (5-bromo-4-chloro-3-indolyl beta-D-galactopyranoside) and form blue colonies when grown on Media where it is supplemented.

- Insertion of foreign DNA into the MCS located within the lac z gene causes insertional inactivation of this gene at the N-terminal fragment of beta-galactosidase and abolishes intra-allelic Complementation.