

- **PROJECT-5 : Transposon precise excisions and physiological function of *uup* gene**

Precise excisions of transposon insertions occur as rare events by a mechanism(s) unrelated to transposition or homologous recombination. We have identified and characterized mutations in *ssb* (encoding the single-strand DNA binding protein SSB), *topA* (encoding topoisomerase I) and a new gene called *uup* that increase the frequency of transposon precise excisions (1,2). The *uup* gene is the second gene of a bicistronic operon *ycbY-uup*, and the function encoded by *ycbY* has been shown not to be involved in transposon excisions (2). Mutations in *uup* also increase the frequency of another mutational event, namely deletion of one copy of a tandem chromosomal repeat (TRD). Future studies are aimed at understanding the physiological functions of the *uup* and *ycbY* genes, and at elucidating the mechanisms of precise excisions and TRD.

1. Reddy, M., and J. Gowrishankar. 1997. Identification and characterization of *ssb* and *uup* mutants with increased frequency of precise excision of transposon Tn10 derivatives: nucleotide sequence of *uup* in *Escherichia coli*. *J. Bacteriol.* **179**: 2892-2899.
 2. Reddy, M., and J. Gowrishankar. 2000. Characterization of the *uup* locus and its role in transposon excisions and tandem repeat deletions in *Escherichia coli*. *J. Bacteriol.* **182**: 1978-1986.
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