

5 Error Prone repair:

Under the certain circumstances, eg. UV irradiation. Error prone DNA synthesis occur in E. coli by DNA pol. IV & DNA pol. V (TLS pol.). The TLS pol. are devoid of proof reading activity

DNA damage

↓
Activation of Rec-A

↓
Proteolytic cleavage in Umu-D, to form Umu D'

↓
Formation of (UmuD')₂ UmuC
(k/a DNA pol. V)

↓
DNA pol. V can bypass lesions to replace DNA Pol. III

↓
Replⁿ fidelity ↓ ses by 100 times

↓
Errored-repair

6 SOS Repair:

Under the cellular stress extensive DNA damage occurs which needs extensive repair (based on UV-mediated repair + recombination mediated repair + error prone repair).

This increased capacity to repair damaged DNA represent SOS response.

The SOS response is induced by the interaction of activated Rec-A with Lex-A protⁿ.

Lex-A is a transcriptional repressor of several operons including gene for itself & for Rec-A protⁿ.

