8/2/95
85

Errol Friedberg ; Transcription & DNA Repair

Nucleotide Excision Repair

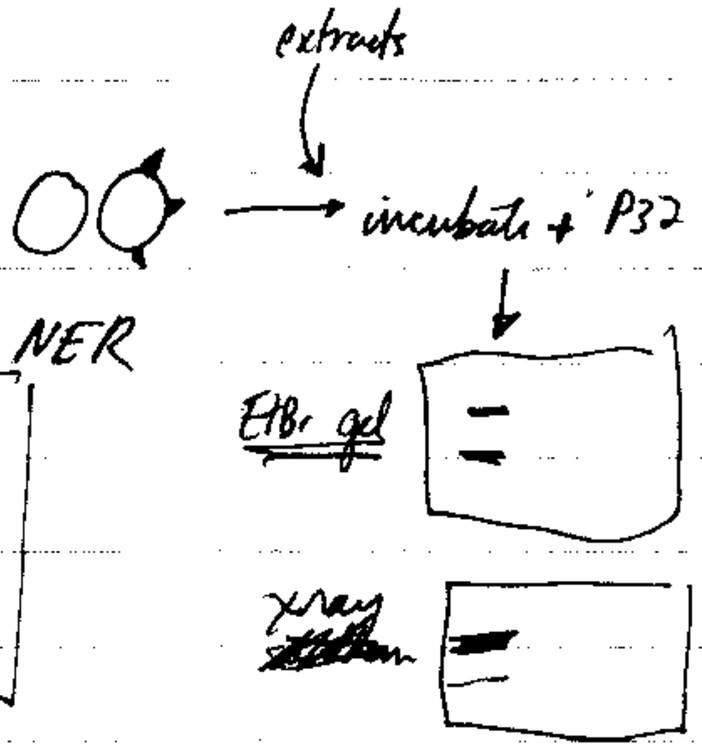
- S. cerevisiae

- in vitro assay (Wood assay)

- nine genes reqd. for RNA pol II indep. NER

SSL

RAD1	RAD3 (only essential gene)	RAD7
RAD10	RAD4	RAD16
RAD2	RAD14	RAD23



- 3 relationships betw. NER & Tx

① NER faster in tx. active regions

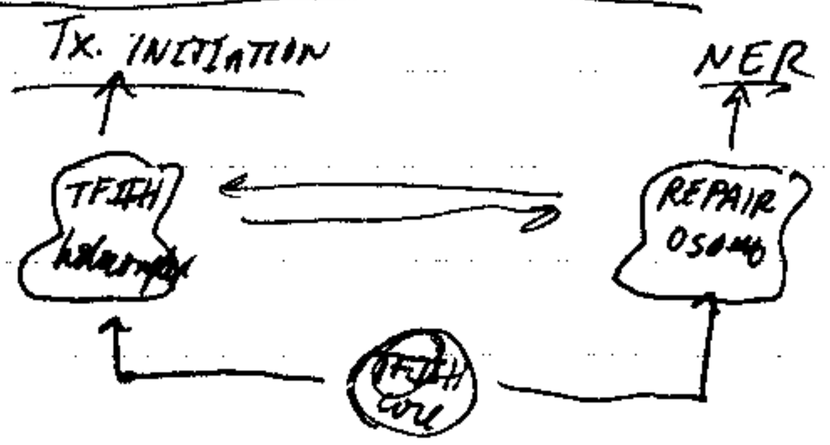
② " " on tx. strand

③ NER [redacted] requires proteins which are known tx. initiation factors

- TFIIH

SSL1	SSL2	TFb2
RAD3	TFb1	TFb3

} also required for NER

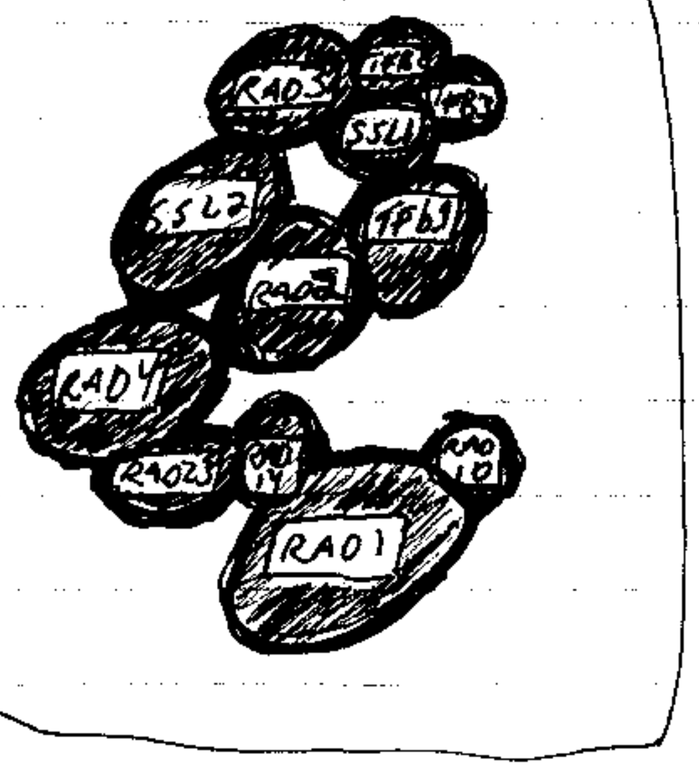


- RAD2 - interacts w/ SSL2 & TFb1

- RAD4 - also interacts w/ TFIIH

- But WHY DOESN'T THIIH STAY w/ RNApol

REPAIROSOME



HUMAN DISEASES
RAD1A XPA
BSL2 XPB - part of TFIIH
RAD1
RAD2

patients w/ mutations in XPB & XPD also sometimes have COCKAYNE'S syndrome.

TTD
- deficiency in thio-protein
- part of the PIBIOS syndrom
- patients w/ the photosensitivity have mutations in XPD

Some COCKAYNES patients do not have XP
- all CS patients are defective in TXCR

If these diseases are tx. defects then CSA & CSB should have tx. defects

WHAT MUTATIONS? Extracts of CSA -- do not show much transcription } DEFECT SPECIFIC FOR PLACE
CSB ...

But can be corrected by adding back WT extracts

XPG ... why do some of these have CS
- v. strong affinity for TFIIH