

Errol Friedberg: Transcription & DNA Repair

Nucleotide Excision Repair

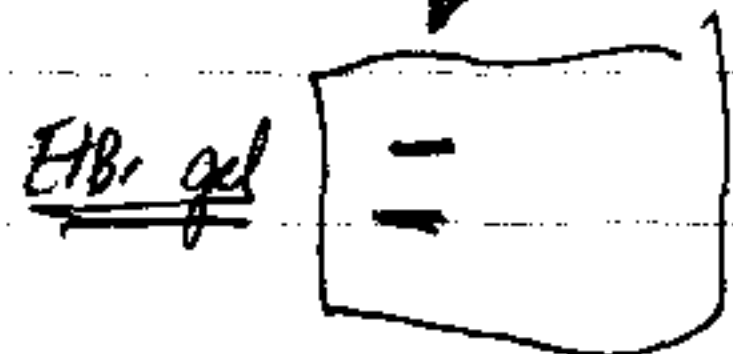
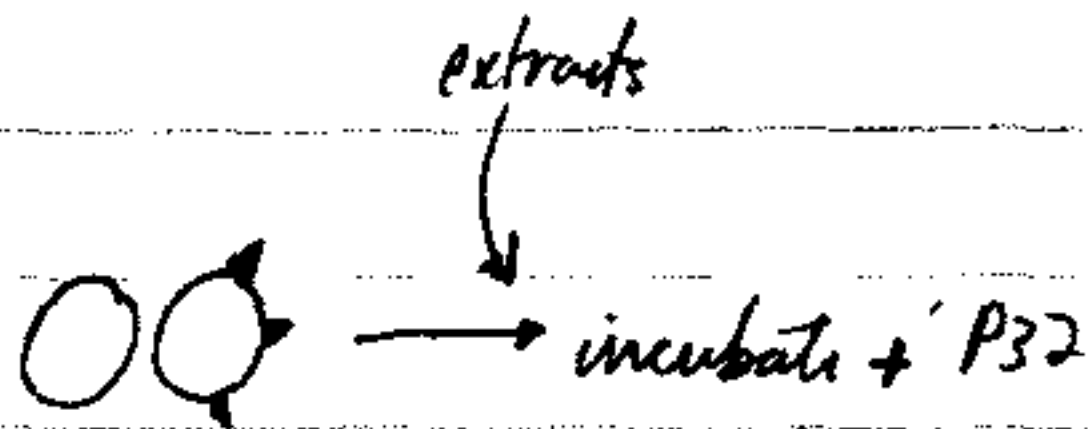
- S. cerevisiae

- in vitro assay (Wood assay)

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

SSL

RAD1	RAD3 <small>only isolated gene</small>	RAD7
RAD10	RAD4	RAD16
RAD2	RAD14	RAD23



- 3 relationships betw. NER & TX

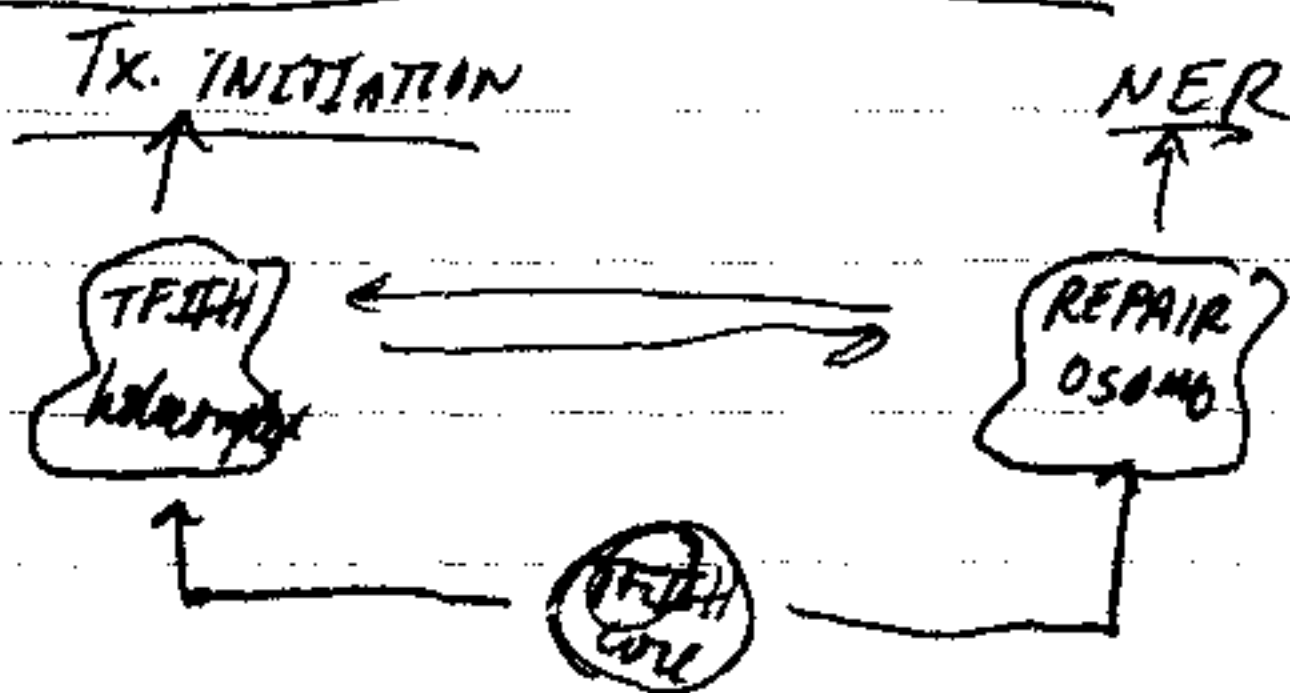
① NER faster in tx. active regions

② " " on tx. strand

③ NER ~~requires~~ requires proteins which are known tx. initiation factors

- TFIIH

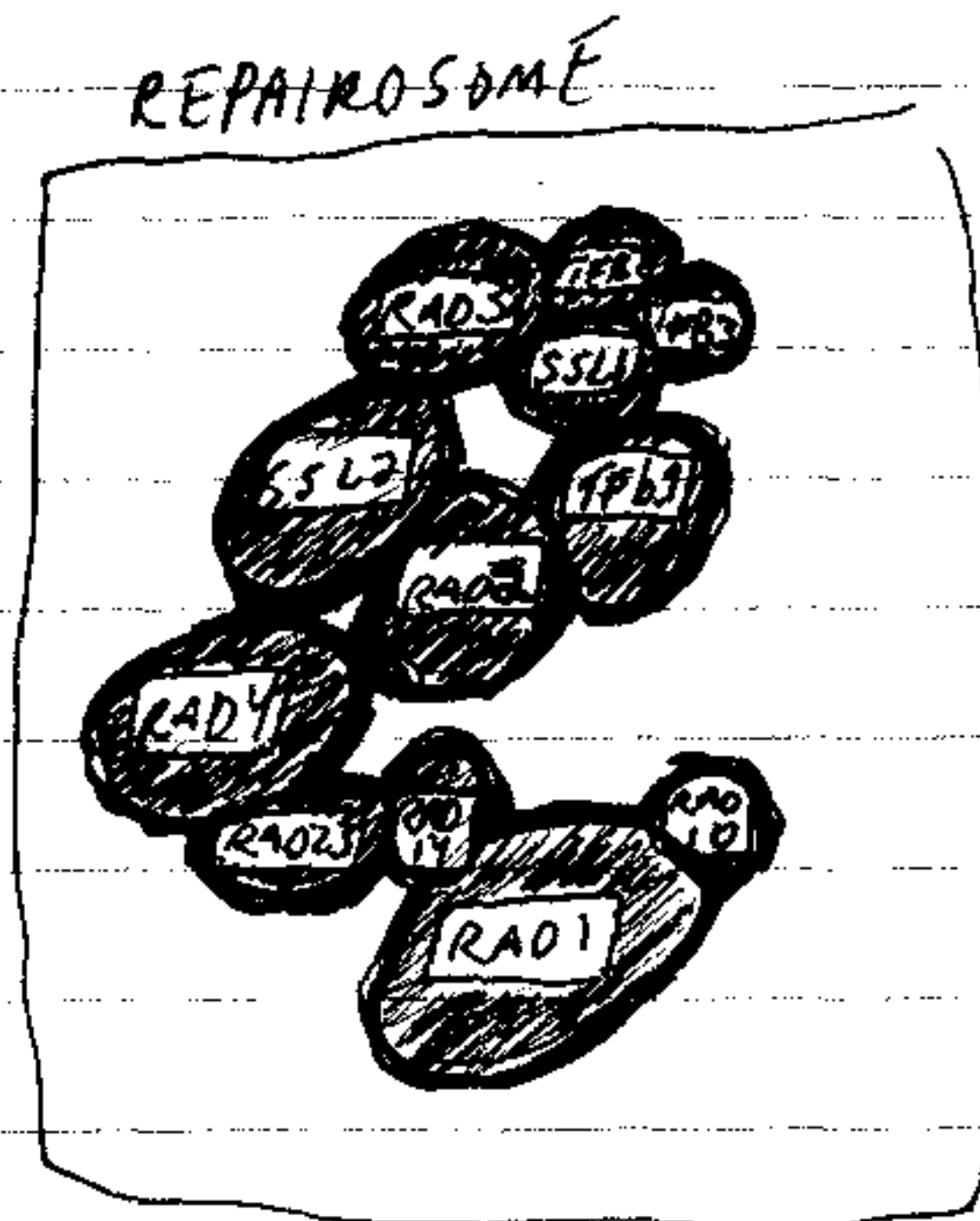
SSL1	SSL2	TFB2	} also required for NER
RAD3	TFB1	TFB3	



- RAD3 interacts w/ SSL2 & TFB1

- RAD4 also interacts w/ TFIIH

- BUT WHY DOESN'T THIS SAY w/ RNA pol



HUMAN DISEASES

RAD14 XPA
 BSL2 XPB - part of TFIIH
 RAD1
 RAD2

Patients w/ mutations in XPB & XPD also sometimes have COCKayne's syndrome.

TID

deficiency in this protein

- part of the PIBIDS syndrome

- patients w/ the photosensitivity have mutations in XPD

Some COCKayne's patients do not have XP

- all CS patients are defective in TXCP

If there are ^{diseases} tx. defects then CSA & CSB should have tx. defects

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

But can be corrected by adding back WT extracts

XP6 ... why do some of these have CS

-v. strong affinity for TFIIH