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HEALTH AFFECTS OF HIGH LET (LINEAR ENERGY TRANSFER) RADIATION - DEEP SPACE

- LOW LET - X-RAYS/GAMMAS

- IONIZING RADIATION

  - MORE DEATH ON A PER LESION BASIS

  - REPAIR SYNT./LESION IS ALSO SMALL

- TYPES OF LESIONS

  - MANY - BUT NOT MANY OVERDOMINATE

- CELL DEATH

  - VARIES W/ TYPE OF LET

  - MANY SUGGEST DEATH DUE MOSTLY TO DS BREAKS

  - COULD ALSO BE DUE TO SS BREAKS / BASE DAMAGE

- SS BREAKS	2.2/MBP	37
- BASE DAMAGE	~6/MBP	100
- DS BREAKS	~0.06/MBP	1

← THEORETICAL ESTIMATE

- MOST OF BASE DAMAGE REPAIRED BUT NOT BY NORMAL ER

- REPAIR INCORPORATION DOESN'T VARY W/ LET
- TIME COURSE OF REPAIR " " " " "
- TIME COURSE V. SLOW

COSKAYNES

CS1AN - HYPERSENS. TO IONIZING RADIATION

CS3BE - SENSITIVE - BETW. CS1AN & W.T.

XPG - ALSO SENSITIVE

DSB MEASUREMENT

CELLS
↓
NOT I — IS NOT I SENSITIVE TO BASE DAMAGE
↓
PFGE
↓ — HOW CONTROL FOR REPLICATION
HYB
↓
RATIO IS BAND TO REST OF SMEAR

SMEAR STRUCTURE

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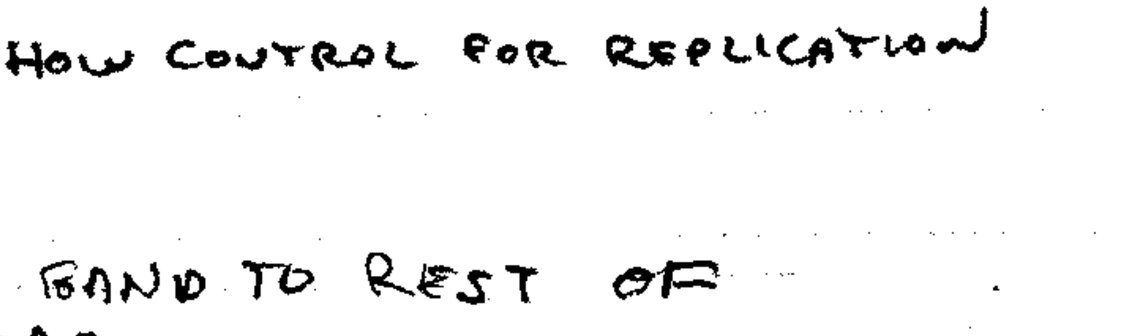
CLUSTERING OF DS BREAKS

- HIGHER CLUSTERING IN HIGH LET
- COILED DNA - PARTICLE HITS ADJACENT SITES



- W/ HIGH LET GET INCR. IN V. SMALL DNA FRAGMENTS - INCR. IN % OF DS BREAKS WHICH HAVE ADJACENT BREAKS.