Mutagenesis by Acridines in bacteriophage T4

~~Appo~~ Apologies (a) being a geneticist

(b) the title.

Coworkers. Leslie Barnett, Sydney Brenner, Richard Watts-Tobin

and for much help : mutants etc, Alice Orgel

"Facts first"

Main Features of acridine mutagenesis   formula for acridines. 

1 only in phage, so far

2 mutants at different sites from B.A. mutants.

3 reversion rules. two main classes. etc.

4 mutants non-leaky. r_{II}. h r O   lysozyme.

* ~~→~~ not reporting data on acridine v BA.

but intensive study of ~~R~~ P13 . preliminary data only.

r_{II} system   [on board.] →

	B	K(12)λ
+	+	+✓
"leaky +"	"+"..... r	✓
r	r	o

- two cistrons.
- mapping : deletion mapping. (take deletion map)

P13 (prof) h made with proflavine : etc. revers. with acridines.

reversions : on K [normal + minute]

↳ purified : streaked on B (and F(λ)) all but 2 were "~~wild~~" pseudo wild.

crossed with wild, using u.v. . gave r's. r's identified.

all in B1 : all non-leaky.

Suppressors of suppressors. — S

suppressors - - - - - of supp. Fig 2 / Fig 6 — P13 ≡ FC0 — S

Apologies for mapping. NOT COMPLEMENTATION

Which will suppress which [41 cases : no 23, yes 18]

Theory [3 acridines add or delete a base.] [explains - non-leaky - mutation rate.] — S

1 genetic code non overlapping. evidence.

how to read? hypothesis.

Call mutants + or -. Fig 2 — S

prediction + with +, - with -, Results. — S

+ with - ? two wrong readings ∴ arrows. — S

- unacceptable readings — S

- ∴ predictions — Table — S

Why region so large? 1589 complementation test.

A & B cistrons separate. 1589 joins together. — S

Summary of results. Rigorous theory — $\pm$ +n, multiple n } . direction of reading. — S

Slide for triple mutants. — S

6 (:) cases. — S

∴ coding ratio 3 or multiple of 3.

evidence for 3 . 4 more acridine mutants. (two +, two −)

2 hydrazine. (acridine reversible) −, −

code degenerate

Summarize conclusions about code

predictions about alteration of protein   Lysozyme.

Nirenberg system