

Alexandrov, I. D. Mira st. 9, ap. 37
Obninsk-I. Kaluga Region, USSR.
♂-irradiation-induced mutations at
specific loci in post-meiotic germ
cells of *D. melanogaster*.

Virgin males 3-4 days old from a mass-
bred wild-type stock, "D-32", were γ -rayed
(4000r) and mated immediately to females
bearing certain markers in the sex
(Ins(1)sc^{S1},dl-49,y sc^{S1}/w^a) and the second
(b cn vg) chromosomes. The first mating
lasted for two days after irradiation in

order to collect all (mature and immature) sperm (first brood). The second mating was
carried out during the following three days in order to collect spermatids (second brood).
Males were placed individually with harems of five virgin females on each mating day. All
F₁ females were examined for the presence of visible mutants at the y, w, b, cn and vg loci
and F₁ males only at the b, cn, vg loci. Altogether, 1520 males were irradiated and 67,030
F₁ females and males were examined among which 131 mutants were found.

All visibly mutant females and males were classified as sterile or fertile. If fer-
tile, the mutants were further classified as viable or lethal. True nature of the latter
was studied. Point mutations have been separated from chromosome rearrangements according
to the viability and fertility of the mutants which were kept in stocks. This classifica-
tion will be checked by cytological and genetical analysis now in progress.

For the first brood the overall mutation frequencies (including cases of inviable or
sterile and lethal mutants) of the y, w, b, cn and vg loci were 0.27; 1.93; 0.20; 0.99 and
 $2.64 \times 10^{-7}/r$, respectively. For the second brood corresponding frequencies were 0.58;
1.44; 0.14; 1.03; $2.22 \times 10^{-7}/r$. Point mutation frequencies in the first brood for those
loci were 0.18; 0.27; 0.04; 0.29 and $0.29 \times 10^{-7}/r$ respectively and 0.14; 0.59 and $0.59 \times$
 $10^{-7}/r$ for loci b, cn and vg in the second brood. Average point mutation frequencies for
all post-meiotic stages germ cells in studied loci were 0.14; 0.21; 0.07; 0.37 and 0.37
 $\times 10^{-7}/r$, respectively.

DeMarinis, F. Cleveland State University,
Cleveland, Ohio. The action of methylurea
on forked (f) bristles and other bristle
mutants.

It was discovered several years ago in our
laboratory that methylurea not only in-
creases the number of facets in the Bar
(B) eye but also modified forked (f)
bristles, changing them to wild-type like
bristles. More recent investigation has

shown that spineless bristle mutant (ss) likewise is modified by methylurea.

A 0.35% by weight of methylurea added to Pearl's formula constituted the experimental
media. Forked Bar (f B) stock raised on this media produced large eyes (approximately 450
facets in males; control 110 ± 3.2 facets) and wild-type bristles. The action of methylurea
on forked and Bar appear to be independent of one another, i.e., forked is modified
independently of Bar, see table 1. The major bristles affected include the scutellars,
postalars, dorso-centrals and the major head bristles. The spineless (ss) bristles increase
to double their normal length, but never approach the length of the wild-type bristles. Other
bristle mutants tested, forked f^{36a}, singed (sn³), Stubble (Sb), Prickly (Pr) and Minute-n
(M(1)n) show no effect. Also combination of these mutant genes were studied. Forked-spine-
less (f, ss) and forked-Minute-n (f, M(1)n) were modified to wild-type like bristles, approxi-
mately double the normal mutant length.

Other ureids were tested; 2% urea, 0.25% allylurea, 0.5% acetylurea, 0.25% biuret,
0.25% ethylurea, 2% birurea. Ethylurea, acetylurea, and urea showed similar effect as methyl-
urea but to a lesser degree.

Table 1

Effect of 0.35% methylurea on combination of forked bristle and
Bar eye ♂♂ at 25° C.

	f B	f + ^B	+ ^f B	f ^{36a} B	f ^{36a} +
Effect on bristle	+	+	-	-	-
Effect on eye	+	-	+	+	-