is diminished and recovery of recessive lethals is possible. (Work supported by NASA Contract NAS2-4849.)

Fahmy, O.G. and M.J. Fahmy. Institute of Cancer Research, Chalfont St. Giles, England. Design for testing specific mutability at the bobbed locus.

In our studies of the genetic effects of carcinogens, it was felt desirable to undertake specific mutability tests on some heterochromatic gene loci, of which bb was an obvious representative. A major difficulty with bb, however, is that different alleles show considerable variation in viability as well as phenotypic expression, and most homozygous stocks tend to show declining phenotypes on keeping. A strong allele of bb, in combination with f and mal^{bz}, has now been found which remained stable when balanced against sc^{S1} B InS w^a sc^8 (M-5). The homozygous triple-marker females invariably showed an extreme expression of bb, both with regard to the reduction in the size of the bristles and the etching of the abdominal sclerites, but their viability was substantially reduced. The heterozygous females, against a standard-X (f mal^{bz} bb/+), had slightly shortened thinner bristles, indicating that the bb allele had a "semi-dominant" effect. The hemizygous triple-marker males appear bb^+ against a normal Y, but are lethal against Y^{-bb}.

The f mal^{bz} bb/M-5 stock has been successfully used in specific mutability tests at the various marker loci (including w^a on the M-5 chromosome), using several chemical carcinogens. Where activity on bb^+ was required, the stock females were mated to + Y^{-bb} non-bobbed treated males, to ensure the elimination of the background bb mutations from the test. The F_1 consisted of only three of the expected classes; f mal^{bz} bb/Y^{-bb} males were lethal. The F_1 females carrying the M-5 chromosome heterozygously were scored for w^a mutations and a sample was bred on for the assay of the sex-linked recessive mutation frequency in the F_2, by the usual Muller-5 technique. The alternative class of F_1 females (non-M-5) were scored for f, mal^{bz} and bb and all suspected mutants were subjected to confirmatory genetic tests. In particular, flies showing reduction in bristles were backcrossed to the stock bb allele, to distinguish the true sex-linked instances from the autosomal dominant Minutes.

The phenotypic expression of 59 bobbed alleles induced by a carcinogenic hydrocarbon in various test crosses.

Phenotypic expression	Test crosses		
	Homozygous	bb with f mal^{bz}	Y^{-bb}
Wild type	0	0	5
Bristle effect: slight	28	2	2
: intermediate	15	22	29
: extreme	3	6	3
Bristle and abdomen effects	13	29	16
Lethal	0	0	4

Details of the genetic testing of 59 bb alleles induced by the carcinogen 7-bromomethyl-12-methyl benz(a)anthracene are given in the accompanying table. On the whole, alleles with clear expression homozygously also showed with more exaggerated phenotype when crossed to the test stock bb or Y^{-bb}, while those with only slight effects were rendered scorable. The stock bb was more useful in this respect since it revealed the majority of the induced mutants with both bristle and abdomen effects; also with Y^{-bb}, 5 alleles overlapped wild-type and 4 were lethal. It would appear, therefore, that our stock bb was an appreciable size deletion which permitted the recovery of a range of induced deletions within the bb^+ locus, particularly those of smaller size : of slight expression homozygously. Conversely, however, induced deletions of a size approaching that of the test marker, could have been inviable, which might have resulted in underestimating the activity of the tested compounds. The test stock is now being modified to overcome this difficulty.