

4. Summary of linkage studies with albino mutants.

Linkage data that have accumulated to date for eight different mutants are summarized below. Seven of these mutants (vp-5, lw-1, w-cl-1, vp-2, lw-2, vp-9) are characterized by pale yellow or white endosperms and albino seedlings. The eighth mutant, ps, has pink endosperms and albino seedlings with a tinge of pink. The pastel-8686 allele of w-3 has seeds with pale endosperms that give pale green (pastel) seedlings instead of white. The green mosaic allele of vp-2 undergoes frequent back mutation to normal in the endosperm and seedling, resulting in yellow endosperm with patches of yellow and with albino seedlings with a mosaic of green tissue. Mutants vp-2, vp-5, vp-9, ps and w-3 frequently exhibit vivipary in addition to the traits already mentioned. In the following summary, given on the next page, the mutant is listed to the left above the chromosome map along with the chromosome arm in which it is found. The linkage maps are after Rhoades (Science 120: 115-116, 1954) with linkage values given by him listed below the chromosome maps. The linkage values determined by these studies are given above the chromosome maps connecting the genes with which tests have been made. In the cases of lw-1, cl-1 and vp-9, it has not been determined with certainty whether the mutants are to the left or right of their closest marker gene. The position shown is the most probable one on the basis of the present data. To the right of each linkage map is a list of the translocations with which linkage has been obtained, along with the position of the translocation break point and the linkage values. A linkage map for a mutant, pastel-8549, has not been included since it is an allele to

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5. Further allele test with albino mutants.

In addition to the albino genes listed on the above linkage maps, w-8624 and w-7748 have been placed on chromosome three by a test with translocation 3-9c. Allele test with these two mutants this past summer gave positive results. Allele test with cl-1, which is also on chromosome three, gave negative results in a cross with w-8624 where both parents were known to be heterozygous.

Allele test in 1957 had established that a mutant sent me by Mumm (out of Oh7) was allelic to one sent by Dr. Braun (out of 182). Test this year established that these were in turn, allelic to vp-9 on chromosome 1.

A new pastel mutant, pastel-4889, has proved to be non-allelic to pastel-8549 and pastel-8686. Its position on the linkage maps has not been determined as yet.

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