The authors are deeply indebted to Dr. T.K. Johnson for sending stocks Df(1)4b1, ct4b1 oc ptg/In(1)dl-49, y sc Is2B; Dp(1;3)sn13a; ct J A124 Dp(1;2)sn+72d/In(2R)LG1a; and Df(1)ct J1Y.


A subset of monoclonal antibodies raised against nuclear proteins of D. melanogaster cells are specific for ribonucleoprotein complexes (RNP) (Risau et al. 1983). It could be shown that some of these crossreact with polytene chromosomes of D. hydei (Saumweber et al. 1980). Surprisingly the respective antigens are concentrated on distinct Y chromosomal structures in primary spermatocytes of this species (Glaetzer 1984). Because the Y chromosome in Drosophila is indispensible for male fertility, similar functions may be reflected by a similar accumulation of RNP antigens on particular Y chromosomal formations. We therefore tested a number of monoclonal antibodies on cytological preparations of spermatocytes of D. melanogaster. In addition we mapped the labeled nuclear structures on the Y chromosome with the positively reacting antibodies. For this purpose we used translocation stocks of J.A. Kennison (1981) which he had kindly donated to Dr. U. Schaefer of our institute.

Out of six antibodies tested (P11, Q16, S5, T7, V4, X4), four (S5, X4, P11, Q16) showed a positive reaction with spermatocyte nuclei. The comparison between X0 cells (Fig. 1d, e) and cells carrying a Y chromosome (Fig. 1a, b) or a fragment of it (Fig. 1c, f) revealed that S5 and X4 antigens are concentrated on Y chromosomal chromatin (data with X4 antibody not shown). The other antibodies P11 and Q16 are associated with the presumed autosomes and the remaining nuclear compartment (data not shown).

Figure 1. Localization of antigen S5 by indirect immunofluorescence. Staining pattern of: (a) X;V8-ks-1 V8-genotype; (b) X/Y-genotype; (c) X;V5 F12-genotype; (d,e) X0-genotype; (f) X;V1-5 V24-genotype. cd: "clods"; nt: "net". Magnifications: a,d) x325; b,c) x1600; e) x1800; f) x2200.
From Fig. 1b it is evident that two Y chromosomal structures are decorated by S5 (and X4) antibody. It appears that the antigenic determinants of both antibodies are located on the same RNP structures. One structure is best described as coarse and lumpy; the other Y chromosomal formation consists of a fine granular network. Following the tradition of naming the Y chromatin in primary spermatocytes in accordance with its morphological characteristics, we propose to call them "clods" (cd) and "net" (nt), respectively. This is all the more justifiable as the "clods" correspond to the fertility factor kl-5 and the "net" to the functional unit ks-1. Neither structure, however, has an equivalent in the phase contrast microscope (Meyer et al. 1961).

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