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ENGLAND, CB2 3EH

Dear Dave,

Please don't send me any stocks before you have got rid of the mites. I had a small infection last year , but that one I managed to stop by throwing away all stocks in the actual box. There were about 50 stcks of the type: z w^{-}sn(att-X);TE/SM5,Cy x y $w^{-}rst^{-}$;y^{+}Y;TE/SM5,Cy with different TE:S both for chr.2 and chr.3 (with D^{3}CxF in stead of SM5,Cy). One thing I found several years ago using these stocks, was that all stocks that gave a zeste eyecolor allready as heterozygous (TE/+) individuals also could change into the type which is red with zeste both as hetero and homozygous (TE/TE) individuals. When coming home from Hungary I started to build up new stocks which now are of the type: (1)DX,y w f/y^{+}Y;TE/SM5,Cy x z w^{-}sn/y^{+}Y;TE/SM5,Cy (or with TM3,Sb instead of SM5,Cy for chr.3). As I have made this for over 150 positions, I have now possibilities to make combinations of nearby TE-positions in trans and observing the effect on eyecolor. From the description of some selected results on next page , you can see that combinations of the type TE (red het/zeste hom) combined with TE of the same type sometimes give a yellow zeste color over distances longer than between TE146 and TE36. For example the combination z;TE192/TE35 gives a yellow eyecolor with spots. TE192 is in 28D and TE35 in 29F. For longer distances I sometimes get a yellowish brown or brown eyecolor, but this sometimes also happens for shorter distances like TE146-TE116 (35B-35C) or TE135-TE81(22A-22B).
If I combine one position which produces a zeste eyecolor already as heterozygous (z;TE/+) with one that is red as het.and zeste as hom., then I can bridge much longer distances and get a yellow (zeste) eye color in such combinations as TE146-TE191 (35B-39B) or TE61-TE171 (21EF-24D). Therefore by using a batteri of about ten positions of type $w^{+}w^{+}$ (gives zeste in z;TE/+ ind.) for chr.2 (or chr.3) it will be possible to localize a new TE positin within chr. 2 already by looking on F1 individuals between the actual TE and these ten positions.

Relation between eye color in TE/TE double-heterozygous individuals and the distance between the two TE positions.

I. Yellow (zeste) or brownish-yellow eye color in combinations where:

both parents were red in hetero and zeste in homo with z.

TE187 - TE45 53F-54B14-18 (77.7 ± 1.1 - 79.8 ± 0.5 =2.1)

one parent was lethal as homozygous:

TE133 - TE141 21B-21D (0.1 ± 0.1 - 0.9 ± 0.1 =0.8)

TE133 - TE135 21B-22A

TE192 - TE35 28D-29F

TE36 - TE116 35BC-35C (49.8 ± 0.2 - 50.6 ± 0.2 =0.8)

both parent lethal as homozygous:

TE192 - TE130 28D-29E

TE128 - TE130 29A-29E

II. Brown or yellowish brown eye color in combinations where:

both parents were red in hetero and zeste in homo with z.

TE135 - TE81 22A-22B

TE36 - TE164 35BC-32F/33A (49.8 ± 0.2 - 45.9 ± 0.5 =3.9)

TE53 - TE58 43DE-47BC (56.3 ± 0.5 - 60.1 ± 0.6 =3.8)

both parents lethal as homozygous:

TE192 - TE196 28D-30C?

TE128 - TE196 29A-30C? (31.0 ± 1.0 - 32.1 ± 2.1 =1.1)

one parent was apricot, the other red in hetero and zeste in homo:

TE17 - TE52 24D-23CD (11.7 ± 0.2 - 6.7 ± 0.2 =5.0)

TE49 - TE35 28C-29F (28.5 ± 2.0 - 33.4 ± 0.9 =4.9)

TE1 - TE58 45F8-47BC (58.9 ± 0.5 - 60.1 ± 0.6 =1.2)

III. Yellow (zeste) or brownish yellow eyecolor in combinations where:

One parent was red in het. and zeste in hom. while the other was zeste both in het. and in hom. with zeste. (r/z and z/z)

TE36 - TE146 35BC-35B1.2 (49.8 ± 0.2 - 49.1 ± 0.2 =0.7)

TE164 - TE146 32F/33A-35B1.2 (45.9 ± 0.3 - 49.1 ± 0.2 =3.2)

TE146 - TE191 35B1.2-39B (49.1 ± 0.2 - 55.0 ± 0.4 =5.9)

One parent was red in het. and zeste in hom.while the other was zeste in heterozygous condition and lethal as homozygous, (r/z and z/l).

TE52 - TE171 23CD-24D (6.7 ± 0.2 - 8.5 ± 0.9 =1.8)

TE55 - TE171 22A3-5-24D (2.3 ± 0.3 - 8.5 ± 0.9 =6.2)

TE90 - TE171 21F/22A-24D (2.4 ± 0.2 - 8.5 ± 0.9 =6.1)

One parent is red in het. and lethal in hom. condition, while the other is zeste both in het. and in hom. with zeste.(r/l and z/z)

TE177 - TE192 28CD-28D

TE146 - TE116 35B-35C (49.1 ± 0.2 - 50.6 ± 0.2 =1,5)light brown eyes

I have done such type of localization experiments for some of my unlocalized positions. Thus for TE87 I got a light brown eyecolor with TE152 (which is determined with a low exactness to 2L:18±2 map units from left end) and for TE88 (also undetermined) I got a pure yellow (zeste) eye color with TE45 (region 54B). These results were found in the tenth respectively second test cross for these two positions. Here I had also used TE positions of the type (red/zeste i.e. red as het. and zeste as hom.) which gives a localization that must be more exact than if I used TEs of type z/z (i.e. zeste already in het.). Up to now I have made over 300 combinations of nearby positions. I have divided each chr. arm in three parts; the six most distal regions next six regions and the eight most proximal regions. Then I'm limiting my combinations of two different TEs to two TEs within the same region (usually). If I study the relation between distance (between the two combined TEs) and eyecolor, I can now study the relation in three types of regions: distal, medial and proximal and see if I get genetically longer distances for "yellow eyecolor" in distal than in proximal regions. As many of my positions are w^a (about 25%) and many are lethal as homozygous (about 25%) , I have to make indirect conclusions for these by combining them with one or several nearby w^+ TEs and see if they give a zeste eye color with this.

I hope the stocks I sent were alive. Of TE77 I sent:

2(TE77) which is C(1)DX,y w f/y^+Y;TE77/(+) X y $w^-$$rst^-$/$y^+$Y;TE77/(+)

3(TE77) w;TE77/(ru h D^3CxF)

5(TE77) w; ri ss TE77/(ru h D^3CxF)

Of TE53 I sent:

2(TE53) C(1)DX,y w f/y^+Y;TE53/(+) x y $w^-$$rst^-$/$y^+$Y;TE53/(+)

3(TE53) w; TE53 c sp/(SM5,Cy)

and in addition I sent you some of my proposed asynaptic stocks: "b $sp^+$from no 23" is constructed in two steps from your autosynaptic 35B/41 stock combined with females of type TE146/TE78. In the first step I got redeyed sp individuals that were fertile with the w;35B/41 individuals and gave a stock from which later males were crossed to new w;TE146/TE78 females and a redeyed sp^+ male was rescued. By crossing this to the w;35B/41 (sp) stock I could select a new redeyed stock which is fertile with the autosynaptics but not with ordinary flies.However the cytology does not look as expected.

"R7/R7" is a stock derived from a cross between females of type w;TE146/redTE1 by combination of two independently arisen redeyed individuals. The new stock was later tested for fertility with the w;35B/41 autosynaptics and infertility with ordinary flies.
"H7-H15" was derived from a cross between females of type w;TE146/red TE1 with autosynaptic males of type w;R net /R bw sp and are net but not bw and sp. Also this stock has been tested by backcrosses.
I would be glad if Mike has a chance to look on these cytologically as I´m planning to use them in futher crosses.
It would certainly be nice if you could spend some time here next year. I´m not sure if I´m living alone in the house much longer but you can certainly have a two-bed room for one or two months and divide kitchen and other things with me (or us). The best time would probably be in April-May-June, but you can propose what time you think is best for you. Especially I would be glad if we could do some of the zeste studies together as well as some autosynaptic stock work.

I´m also sending a list over TE positions which I have just comleted for Dr. John Merriam. As you see there are many,which are not cytlogically localized and I would like to complete some of these during next year. I have also almost 100 positions which are not studied at all and consequently are not in the list.

Do you have any idea about the nature of the extra bands (retained after loss of w^+ and rst^+) in your SZ1 derivates?. Is it material from the region where TE146 is localized or is it material brought along with TE when transposing from the TE47 position? There are also some other things in your last paper, that I would like to discuss with you.

Tell my best greetings to Mike!

Yours sincerely,

Gunnar Ising

Via: UK.AC.CAM.PPSW; Fri, 23 Dec 94 13:09:49 GMT
From: ma11 <[redacted]>
Date: Fri, 23 Dec 94 13:11:39 GMT
To: [redacted]
Subject: help flybase
Cc: [redacted]

John

FlyBase has this:

B

*a DS(2)TE45F<up>L</up>TE35A<up>R</up>
*x G. Ising, personal communication to J. Roote

can you trace this, and (best) give me a paper copy of what GI told you (us)

M

R+1 TE
GR15 TE
R14 TE
Hooper 1989 Cell 59: 751–765

Ising 1985 #H7–H15

recomb. between TE45F and TE35B

So should be 35B, 45F
but actually
35B: 44F