FBrf0075313

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June 15th, 1993.

Dear Dr. Santamaria,

I am working with Mike Ashburner as part of Flybase, the project building the database of the genetics and biology of *Drosophila*. In indexing Lindsley and Zimm's Red Book (The Genome of *Drosophila melanogaster*) we have come across several instances where we need clarification and we would be grateful if you could help us out with the question below.

The entry for *polyhomeotic*, on page 547, which you oversaw, lists many mutant alleles. As you know, *ph* is now known to be two genes, *ph-proximal* and *ph-distal*. Can you provide us with any information about which of the alleles on page 547 are in *ph-proximal* and which are in *ph-distal*.?

Thank you very much for your help.

Yours sincerely,

Rachel Drysdale

Rachel Drysdale.

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ENVOI par TELECOPIE

à Transmettre à : Rachel Drysdale
Please Deliver to :
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de la part de : P. Santamaria
from :
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cet envoi comporte 4 pages, dont celle-ci.
total pages ..... , including cover sheet

MESSAGE

Here it is the information for Flybase. on ph

In case you want also information for another Pc-G mxc, I send you also greetings

P

si cette télécopie ne vous parvient pas correctement veuillez nous en avertir rapidement au [redacted]
if you do not receive all the pages or legible copies, please contact the Tél. [redacted]

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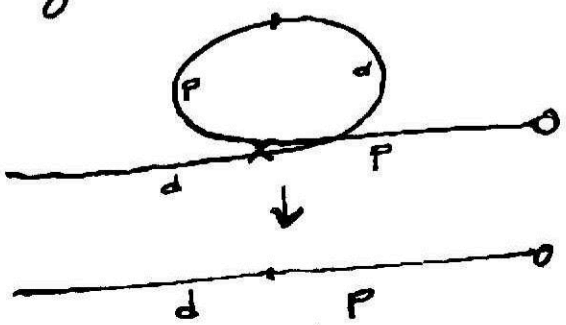
Dear Rachel: On polyhomeotic

ph^{409} and ph^{410} are in the proximal unit

ph^{401} is in the distal

ph^{3} and ph^{7} have a P element in the proximal unit.

ph^{2}, ph^{4} and ph^{10a} are hybrids from the distal part of the distal unit and the proximal part of the proximal unit by recombination in the homologous region



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Fax émis par [redacted] DEPARTEMENT 2 [redacted] 84 [redacted] 69 Pg: 2

EMBO INTERNATIONAL WORKSHOP
MOLECULAR AND DEVELOPMENTAL BIOLOGY OF DROSOPHILA
KOLYMBARI, CRETE, JULY 12 - 9, 1992

P. SANTAMARIA

Centre de Génétique Moléculaire, C.N.R.S, 91198 Gif-sur-Yvette Cédex, France. Tél. : [redacted] - FAX : [redacted].

Our main goal is to order the *Polycomb group* (Pc-G) of genes into classes. Evidence has accumulated that these genes are responsible for fixation of the repressed state for other important genes, mostly selector genes, and different arguments suggest that they work cooperatively by specific recognition and structural modification of their targets. Understanding the group requires identification and classification of the targets as well as identification of specific functions of each Pc-G. We are currently using a wide range of screens in order to obtain an increased sample of Pc-G. On the other hand we have chosen to particularly concentrate our analysis on one gene, showing the largest pleiotropic fan of manifestations, and aim to identify its downstream targets.

mxc : multi sex combs

Location : 1-27.7

Phenotype : A member of the Pc-G. Hypomorphic allele males have extra sex combs on basitarsal segments of mesothoracic, and sometimes, metathoracic legs. They also have small extra sex combs on second tarsal segments of prothoracic legs. Strong alleles have tarsal claws reduced or absent. Eyes are reduced due to transformation of the antero-ventral most part to a plate of bristles. Antennae are reduced and aristae short. Posterior compartment of the wing is reduced. Fourth and fifth abdominal segments are transformed to sixth, like in Mcp. Females are sterile, due to arrest of oogenesis in region 3 of germarium, prior to egg chamber formation. Homozygotes for weaker alleles produce some egg chambers that degenerate and can be laid but never develop. Strong alleles die in late embryogenesis or as larvae and are not viable in clones of imaginal cells in gynandromorphs or in germ line clones.

mxc is enhanced synergistically by Pc, Pcl and Scm, as well as by dominant gain of function alleles of Ant-C and Bx-C. The extra sex comb phenotype is reduced by Df(3R)Scr.

Some alleles act as recessive supressors of z^1 eye color, which becomes orange maroon but differs from $Su(z)^2$-Psc in that the suppression is mainly restricted to the posterior-ventral most part of the eye.

alleles : by increasing severeness, mxc^{G9}, mxc^{M1} (J. Botas), mxc^{G46}, mxc^{G43}, and mxc^{G48}. Only the last behaves like the deficiency.

Cytology : located in 8D3-8D9.

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Germ line differentiation is another developmental pathway regulated by a *Polycomb-group* gene : *multi sex combs*.

P. Santamaria
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Important selector genes responsible for cell commitment in developmental pathways are silenced by the *Polycomb-group* (*Pc-G*) genes in Drosophila. So that *Pc-G* mutants pleiotropically mimic the ectopic gain of function of the genes they directly regulate. A new *Pc-G* gene : *multi sex combs* (*mxc*) is characterized and mutant alleles described. Besides common homeotic transformations characteristic of *Pc-G* mutants that mimic the ectopic gain of function of BX-C and ANT-C genes, *mxc* mutants show others phenotypes : males and females mimic the characteristic lack of germ line of some maternal effect mutants of the posterior group genes (grandchildless). Also some alleles show dominant suppressior of the embryonic lethal phenotype of the progeny of hb nos/ nos females. I propose that gain of function of other genes in *mxc* mutants diverts somatic as well as germ line developmental pathways.

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♦From rd120 Wed Jun 23 13:37:42 1993
From: Rachel Drysdale (Genetics) <[redacted]>
Date: Wed, 23 Jun 93 13:37:40 BST
To: [redacted], [redacted]
Subject: L&Z corrections
Content-Length: 573
X-Lines: 19

Aubs,
Pedro Santamaria said, of ph (page 547):

ph<h409>h and ph<h410>h are in ph-proximal
ph<h401>h is in ph-distal
ph<h3>h and ph<h7>h each have P element in ph-proximal

Wait for it.....
ph<h2>h, ph<h4>h and ph<h10a>h (sic) are hybrids from the distal part of the distal unit and the proximal part of the proximal unit, by homologous reco inthe homologous region.
Therefore should go into the "aberrations-to-create" file, with above names as synonyms.

He also sent us info about 5 mxc alleles, which we should incorporate. See "L&Z sort-out" ring binder.

Cheers,
R