Zuitin, A.I. A Third Chromosome Balancer

The lines carrying numerous mutant genes in the third chromosome may be balanced by means of the chromosome ru h D (Fiodorova), carry-
in the inversion which almost completely suppresses crossing over (to be described in one of the following issues of C.R. Ac. Sc.U.S.S.R.). The stock is: ru h D inv/ru h ru h; Cy sp/Lz.

Muller, H.J. Labor-saving Method of Starting Homozygous or Balanced Stocks of Sex-fertile Sex-linked Genes

(1) Balancer stock "Pat-
roclinous" ("Pat")
P1 CLB, sc v/sc v lx f  
bv/yca (non-disjunction)

X dl-49, lzb/Yc

Eggs:  CLB, sc v (half carry Y)  sc v lx f bb (half carry Y)  
CLB sc v/sc v lx f bb (non-disjunction)  Y (non-dis.)

Sperm:  lzb dl-49  Y

F1  CLB, sc v/dl-49, lzb (1/2 carry Y)  CLB, sc v/y (1/2 YY) (dics)  
sc v lx f bb/dl-49, lzb (""")  sc v lx f bb/Y (""")  
CLB, sc v/sc v lx f bb/dl-49, lzb (dics) CLB, sc v/sc v lx f bb/Y (dics)  

dl-49, lzb/Y (dics)

To perpetuate, breed sc v B vy (need not be virgin) by dl-
49, lzb brothers or fathers (selection needed to retain sc v lx f bb).

(2) Let "s" represent sex-linked gene or combination of genes.

Then:

P1  CLB, sc v/sc v lx f bb/Y  X  a/Y  

Eggs:  CLB, sc v (1/2 carry Y)  sc v lx f bb (1/2 carry Y)  
CLB, sc v/sc v lx f bb (non-disjunction)  Y (non-dis.)

Sperm:  a  Y

F1  CLB, sc v/a  (1/2 carry Y)  CLB, sc v/Y (1/2 YY) (dics)  
sc v lx f bb/a (""")  sc v lx f bb/Y (1/2 YY) (dics)  
CLB, sc v/sc v lx f bb/a  CLB, sc v/sc v lx f bbb/a  
(3X Y, does or sterile)  Y/Y (non-
dics)

To form stock of "a", breed B (not sc or v) vy vy (need not be virgin) by any brothers or fathers:  CLB, sc v/a  vy (1/2 carry Y)  X  a.

If "s" has good viability and fertility when homozygous, this stock will automatically become a/c(Y) vy X a/Y(Y) vy after a few generations; otherwise, it will remain balanced and this will then be the more desirable condition to have it in. If presence of supernumerary Y in stock is undesirable, a stock of "Patroclinous" should be used in which the Y is marked by Cy owing to a translocation between Y and a chromosome 2 contain-
ing Cy. In this case only the non-Cy B F1 vy vy are used for brood-
ing. This stock is called "Curly Pat".

Muller, H.J. Balancing of Dupli-
cations by Deficiences or Lothers and Vice verse -(Bridges, Muller)

Example:  P.  Y v/sc  

111 vy X y/del-24/Y  
(del-24 is "deleted-X"  
= duplication covering locus of 111, Y and sc).

F1 sc f111/del-24/Y vy X  y vy