

Cytogenetic characterization of sexual chromosomes in the “short-Y” *Anastrepha fraterculus* strain

M.C. Giardini^{1*}, F. H. Milla¹, M. Nieves², J. L. Cladera¹ and S. B. Lanzavecchia¹

¹Laboratorio de Genética de Insectos de Importancia Económica, Instituto de Genética “Ewald A. Favret”, Hurlingham, Buenos Aires, Argentina. ²Grupo de Investigación en Biología Evolutiva, Departamento de Ecología, Genética y Evolución, FCEyN, Universidad de Buenos Aires, Buenos Aires, Argentina. *giardini.maria@inta.gov.ar

The South American fruit fly, *Anastrepha fraterculus* (Diptera: Tephritidae)

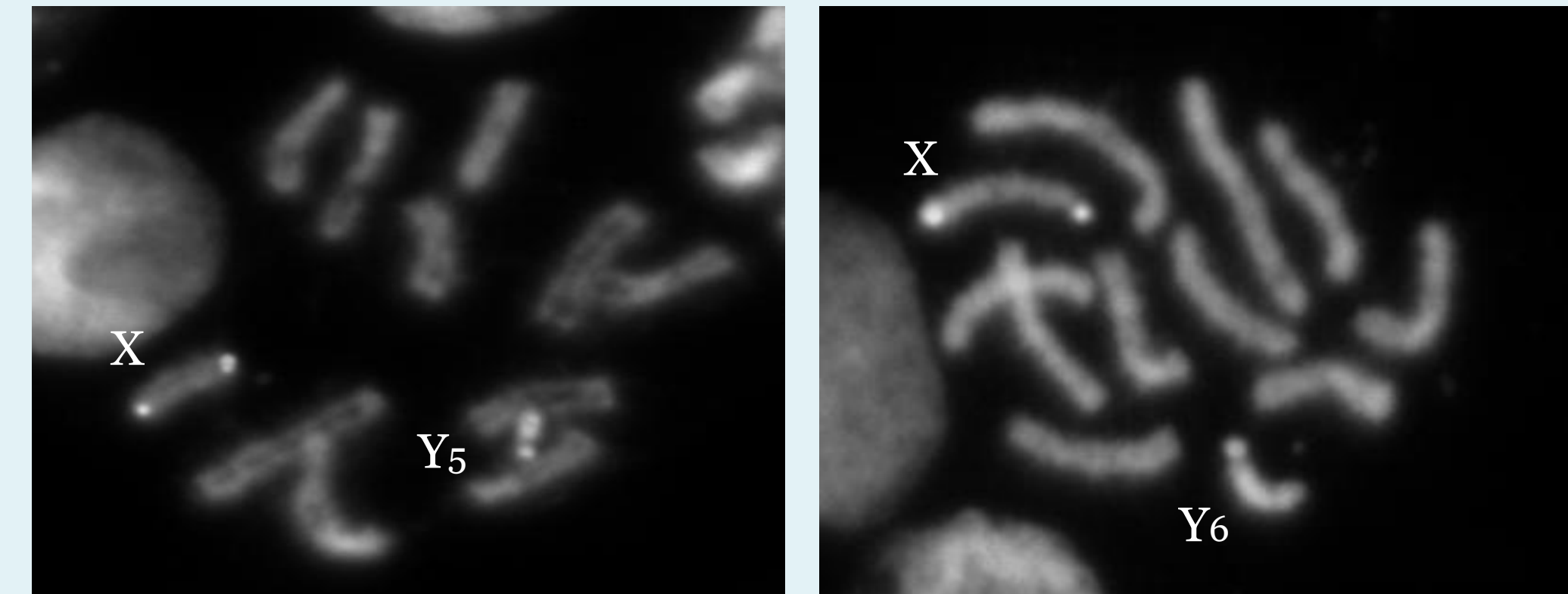
XX/XY sex determination system

The presence of genes encoding male determining factors linked to the Y chromosome has been previously reported in Dipteran species. No information is available for *A. fraterculus*



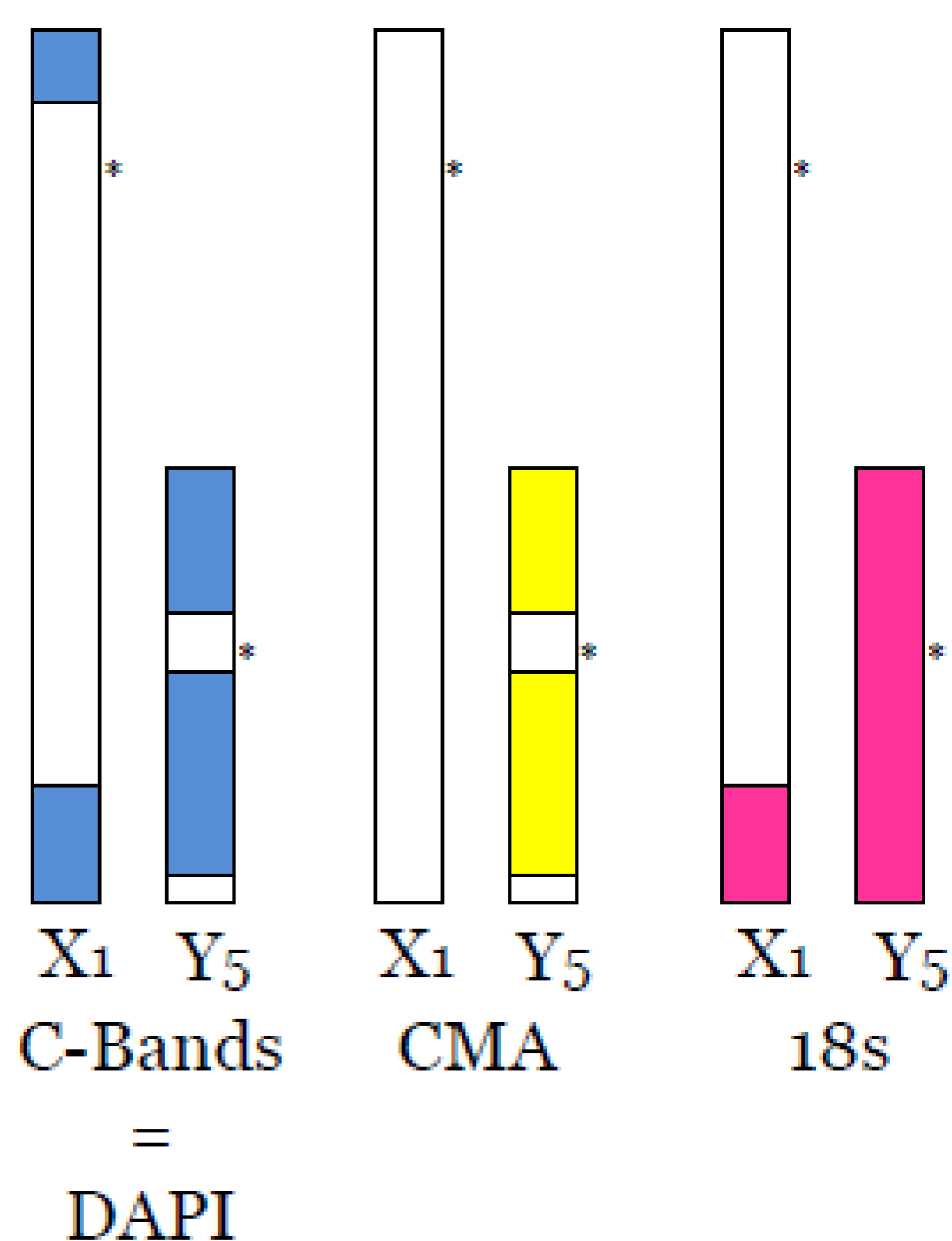
In our laboratory strain

We identified two of the six reported morphological variants of Y chromosomes (Y₅ and Y₆).



“Short-Y” *Anastrepha fraterculus* strain (Purification and Cytological analysis)

Reference karyotype (Argentinian population)



C-Bands

DAPI

CMA

Merge



- The “short-Y” (Y₅) *A. fraterculus* population retains the same heterochromatin distribution of the *A. fraterculus* reference karyotype.
- The constitutive heterochromatin extends throughout almost the entire Y showing AT and GC-rich regions.
- Further analysis by FISH co-localized the ribosomal genes in the constitutive heterochromatin of the Y, whereas, the ribosomal genes cluster on the X is localized at the terminal position in the long arm (pictures not shown).
- **This cytological characterization provides new insight to continue exploring *A. fraterculus* genetics towards the identification of male determining genes in this pest species and the selection of suitable strains for the development of environmental-friendly control strategies.**



Instituto de Genética
Ewald A. Favret



Laboratorio 46, Depto. de Ecología, Genética y Evolución (EGE),
Facultad de Cs. Exactas y Naturales (FCEN), Universidad de Buenos Aires (UBA).
4to. Piso, Pabellón II, Ciudad Universitaria, C1428EHA, C.A.B.A., Argentina
Tel: (00 54) 11 4576-3348 / (00 54) 11 4576-3300 #261
Fax: (00 54) 11 4576-3354

Instituto Nacional de Tecnología
Agropecuaria

