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

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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).

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

- 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.