

Description of Additional Supplementary Files

Supplementary Data 1

Description: Public datasets used for assembly quality assessment

Supplementary Data 2

Description: Introduced heterozygous variants and errors in the simulated hg38 assemblies

Supplementary Data 3

Description: Comparison of CRAQ output and simulated errors in the simulated hg38_sim2

Supplementary Data 4

Description: Simulated errors missed by CRAQ (false negatives)

Supplementary Data 5

Description: Potential error locus in the HiCanu assembly of *D. melanogaster* hybrid F1

Supplementary Data 6

Description: CREs and CSEs identified in the Canu assembly of *S. pennellii*

Supplementary Data 7

Description: SyRI SV statistics for the Canu assembly of *S. pennellii*

Supplementary Data 8

Description: Statistics for CSE breakages and overlaps with BioNano conflicts in *A. oxysepala*

Supplementary Data 9

Description: Bionano conflicts in *A. oxysepala* and overlaps with CSEs

Supplementary Data 10

Description: Comparison of quality evaluation for *A. oxysepala* before and after CRAQ correction