# A high incidence of meiotic silencing of unsynapsed chromatin is not associated with substantial pachytene loss in heterozygous male mice carrying multiple simple Robertsonian translocations

Manterola, Marcia

Page, Jesús

Vasco, Chiara

Berríos, Soledad

Parra, María Teresa

Viera, Alberto

Rufas, Julio S.

Zuccotti, Maurizio

Garagna, Silvia

Fernández-Donoso, Raúl

Meiosis is a complex type of cell division that involves homologous chromosome pairing, synapsis, recombination, and segregation. When any of these processes is altered, cellular checkpoints arrest meiosis progression and induce cell elimination. Meiotic impairment is particularly frequent in organisms bearing chromosomal translocations. When chromosomal translocations appear in heterozygosis, the chromosomes involved may not correctly complete synapsis, recombination, and/or segregation, thus promoting the activation of checkpoints that lead to the death of the meiocytes. In mammals and other organisms, the unsynapsed chromosomal regions are subject to a process called meiotic silencing of unsynapsed chromatin (MSUC). Different degrees of asynapsis could contribute to disturb the normal loading of MSUC proteins, interfering with autosome and sex chromosome gene expression and triggering a massive pachytene cell death. We report that in mice that are heterozygous for eight multiple sim