



Figure 1 Structures and transmission frequencies of minichromosome derivatives used in these studies. Structures of derivatives of the free duplication/minichromosome *Dp(1:f)1187* (referred to as *Dps*)²¹.

Movie legends

Movie 1 Anti-CID TMR: embryo injected with tetramethyl-rhodamine labelled anti-CID.

Interphase injection: the antibody does not enter the nucleus until nuclear envelope breakdown at mitosis. The antibody specifically binds centromeres during all stages of the cell cycle, and binds in a gradient with decreasing antibody bound with increasing distance from the site of injection.

Movie 2 Anti-CID injection: embryo injected with anti-CID show a series of phenotypes. Embryos injected in interphase show phenotypes two cycles after injection.

Movie 3 Anti-CID control: embryos injected with heat-killed anti-CID show few mitotic defects.