Pattabiraman et al., http://www.jcb.org/cgi/content/full/jcb.201404109/DC1

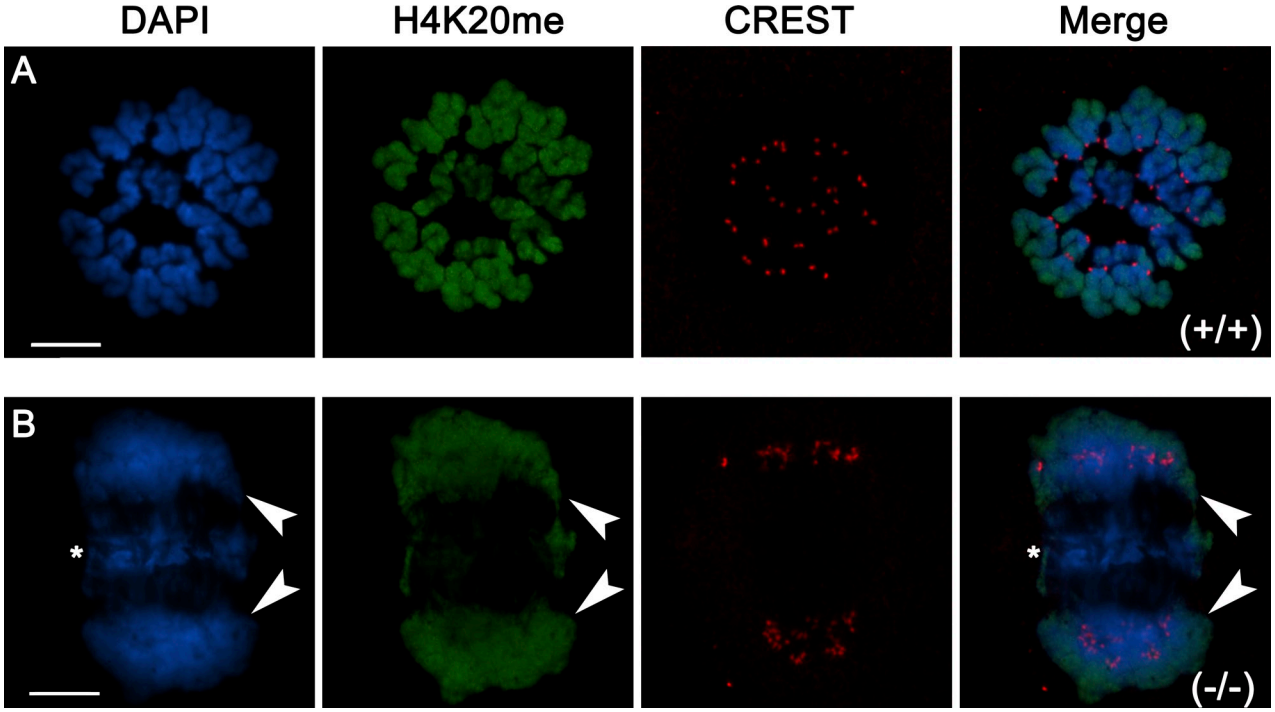

Figure S1. **Normal histone methylation in *Brwd1* mutant oocytes.** (A) Monomethylation of histone H4 at lysine 20 ($H4K20me_1$: green) throughout the chromatids of meiotic chromosomes in WT oocytes. Centromeres are stained with CREST antiserum (red). (B) The localization of H4K20me1 to the chromosomes of $Brwd1^{-/-}$ oocytes is interrupted only by the loss of structural integrity at anaphase bridges.

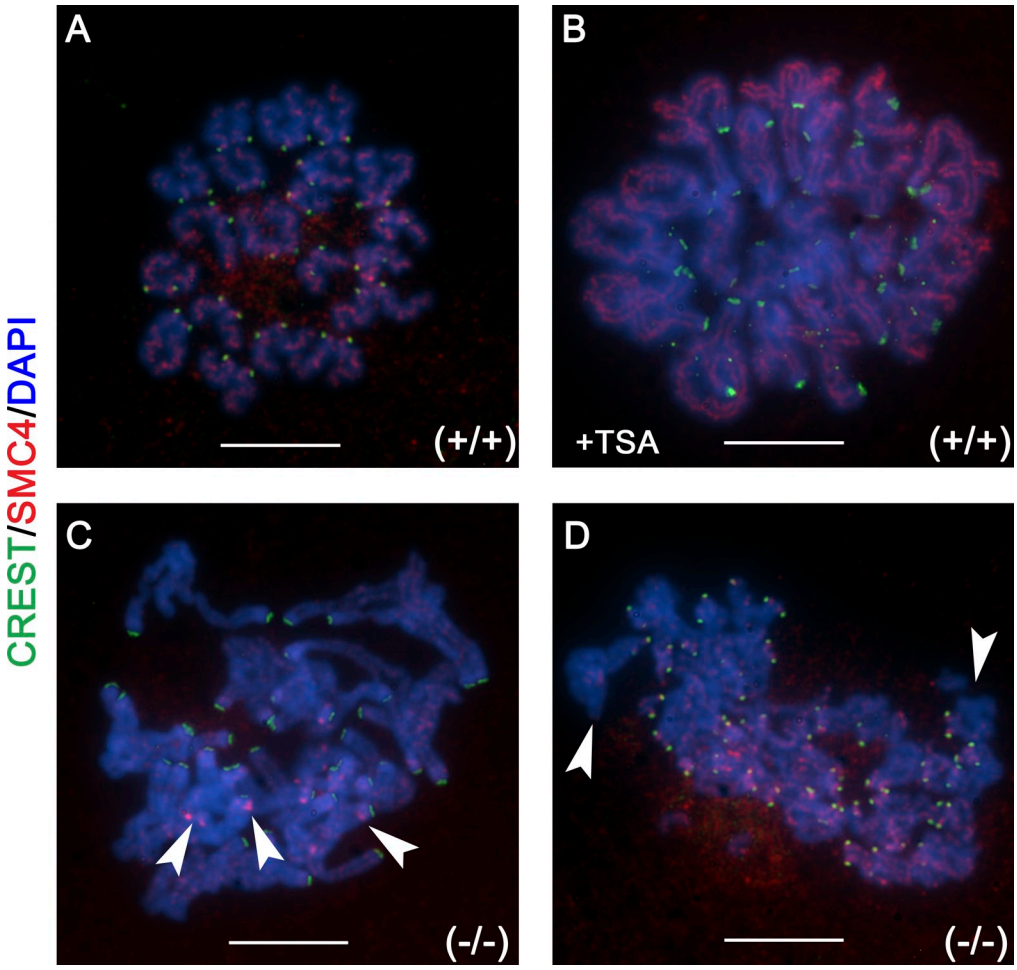

Figure S2. **Localization of structural maintenance of chromosome (SMC4) to the axial chromatid core in *Brwd1*$^{-/-}$ oocytes.** (A) Control WT oocyte showing axial labeling of SMC4 (red) along each chromatid at the metaphase II stage. Centromere–kinetochore domains are stained with CREST (green). (B) Exposure of WT oocytes to TSA induces chromosome elongation without disrupting the axial chromosomal localization of SMC4. (C) Chromosomes in *Brwd1*$^{-/-}$ oocytes exhibit axial chromatid SMC4 localization, albeit with a nodular appearance at distinct chromosomal regions (arrowheads). (D) SMC4 staining in the chromosomes of mutant oocytes is interrupted only by the loss of structural integrity (arrowheads). Bars, 10 µm.

Table S1. **Real-time PCR primer sequences**

No.	Gene	Forward primer sequence (5′-3′)	Reverse primer sequence (5′-3′)
1	*Tnp1*	GGGCGATGATGCAAGTCGCAATTA	TCACGACTGGCATTTACCCACTCT
2	*Tnp2*	AAGTGAGCAAGAGAAAGGCCGTCA	ACATCCTGGAGTGCGTCACTTGTA
3	*Prm1*	AGACTTCAAGAGCATCTCGCCACA	ACAGGTGGCATTGTTCCTTAGCAG
4	*Prm2*	TGCAGGAAATGTAGGAGGCACCAT	AGGGCTCAGACATCGACATGGAAT
5	*Akap4*	ACGGGCCATTTGGATTACCAGAGA	TTGCCACTCCTGAGGGAGAATGTT
6	*Hsp1a*	TTCCTTTATCCAAGCCGTAGGCGA	AGGTGTCATCGCAGGACTCAATGT
7	*Tssk6*	TGCTGTTGGGTTCTGATTCCTCCT	AGGCGCAATGCTTCTCTCTCTTCT
8	*Fscn3*	TGGCCTGCTAATGGCAAATGTCAC	TGGCGACAGGGCAATAGCTGAATA
9	*Oxct2a*	AGGTGCTGCTAAGGATGTCCAGTT	ACCTCAAGCCCATGCAGCAGATTA

Table S2. **List of annotated genes with at least twofold lower expression of mRNA in *Brdw1*$^{-/-}$ oocytes at the GV stage compared to WT oocytes after microarray analysis**

MGI gene ID	Gene symbol	Gene name	Feature type
MGI:1913523	*Aamdc*	Adipogenesis associated Mth938 domain containing	Protein coding

Table S3. **List of annotated genes with at least twofold higher expression of mRNA in *Brdw1*$^{-/-}$ oocytes at the GV stage compared to WT oocytes after microarray analysis**

MGI gene ID	Gene symbol	Gene name	Feature type
MGI:96163	*Hmox1*	Heme oxygenase (decycling) 1	Protein coding
MGI:2686410	*Gm1564*	predicted gene 1564	Protein coding