DNA environment of centromeres and non-homologous chromosomes interactions in mouse

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SUPPLEMENTARY MATERIALS

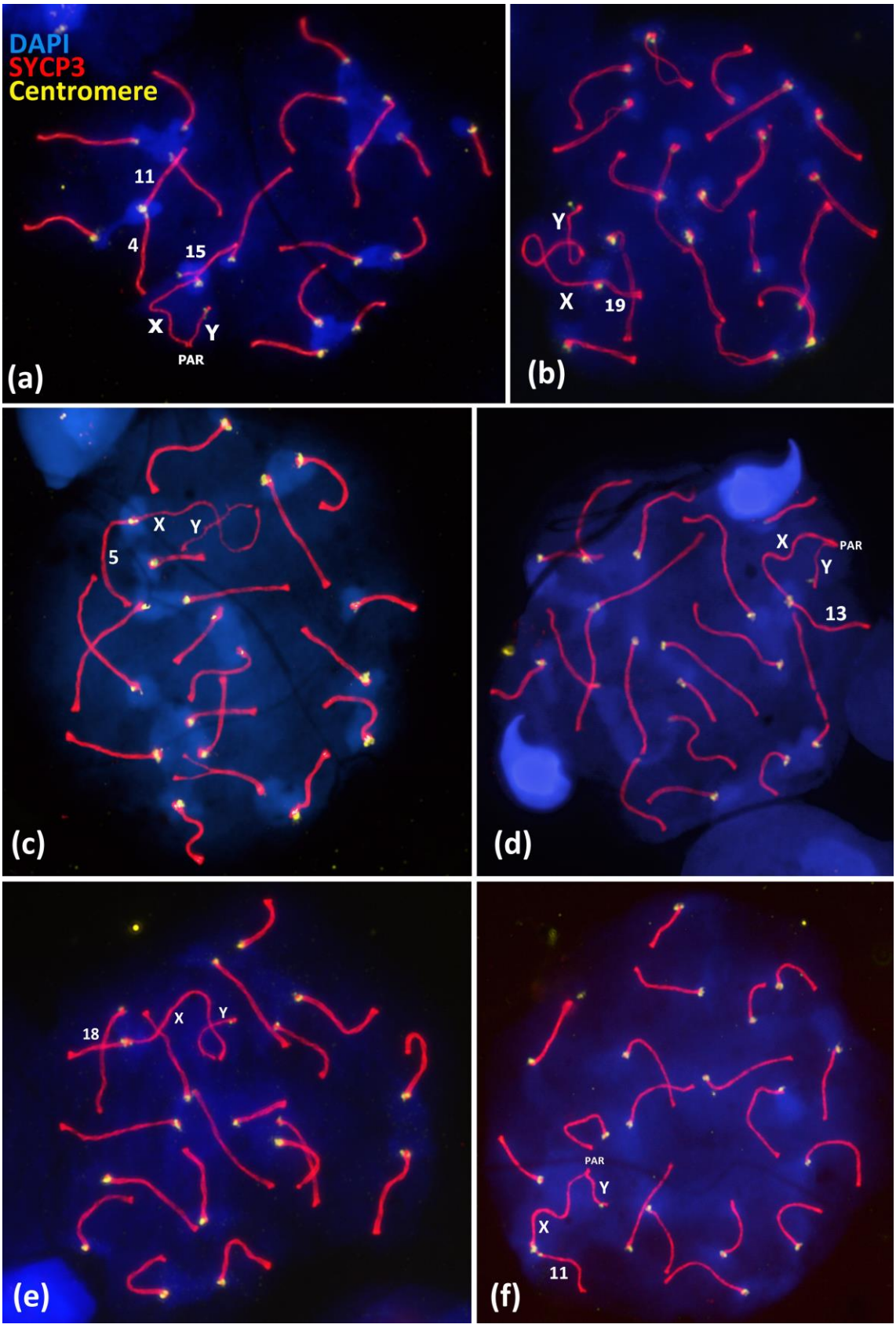

Figure SM1. Associations between centromeric regions of autosomal chromosomes and X chromosome in BALB/c mouse meiotic nuclei. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow)

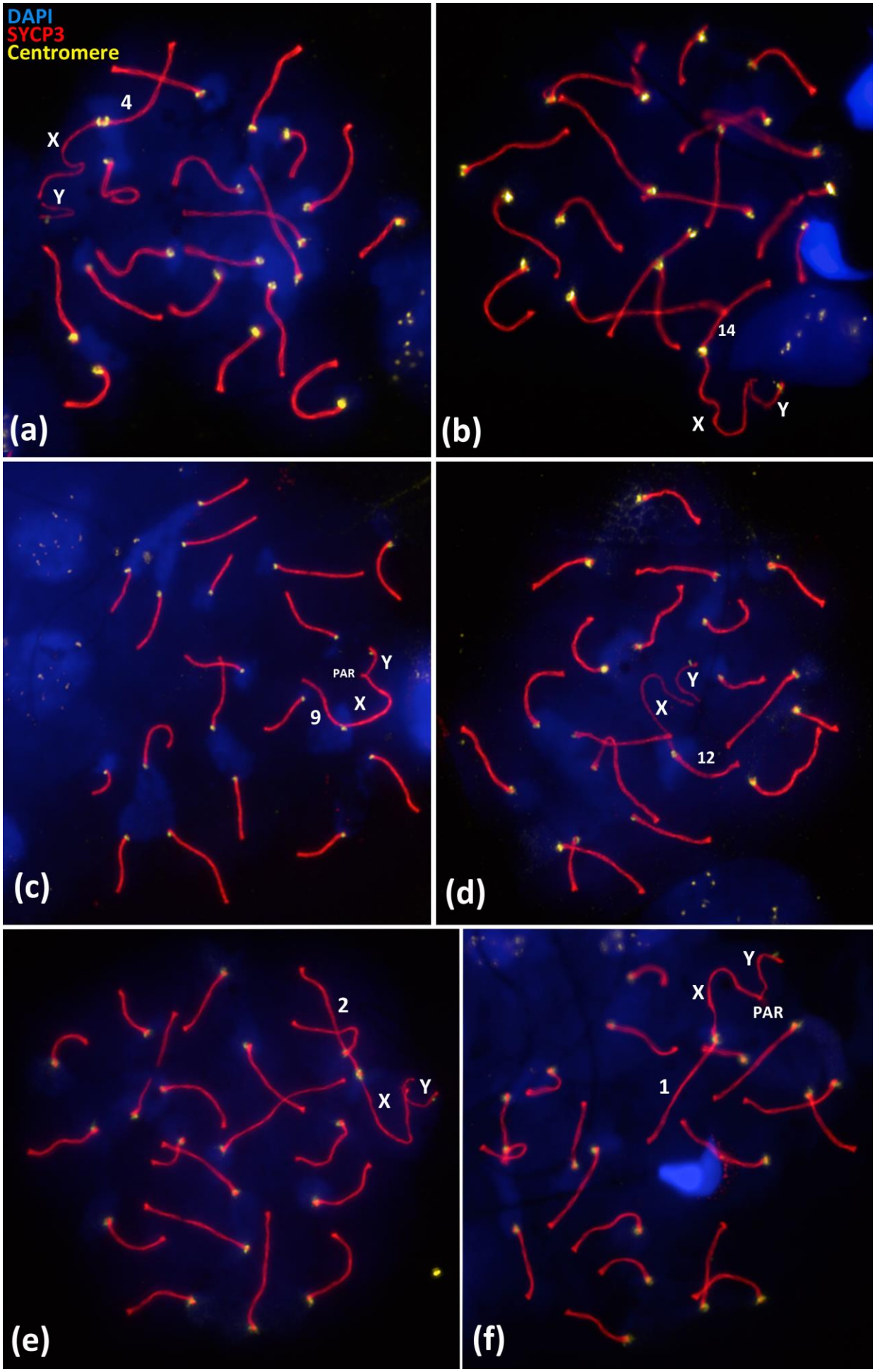

Figure SM2. Associations between centromeric regions of autosomal chromosomes and X chromosome in BALB/c mouse meiotic nuclei. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow)

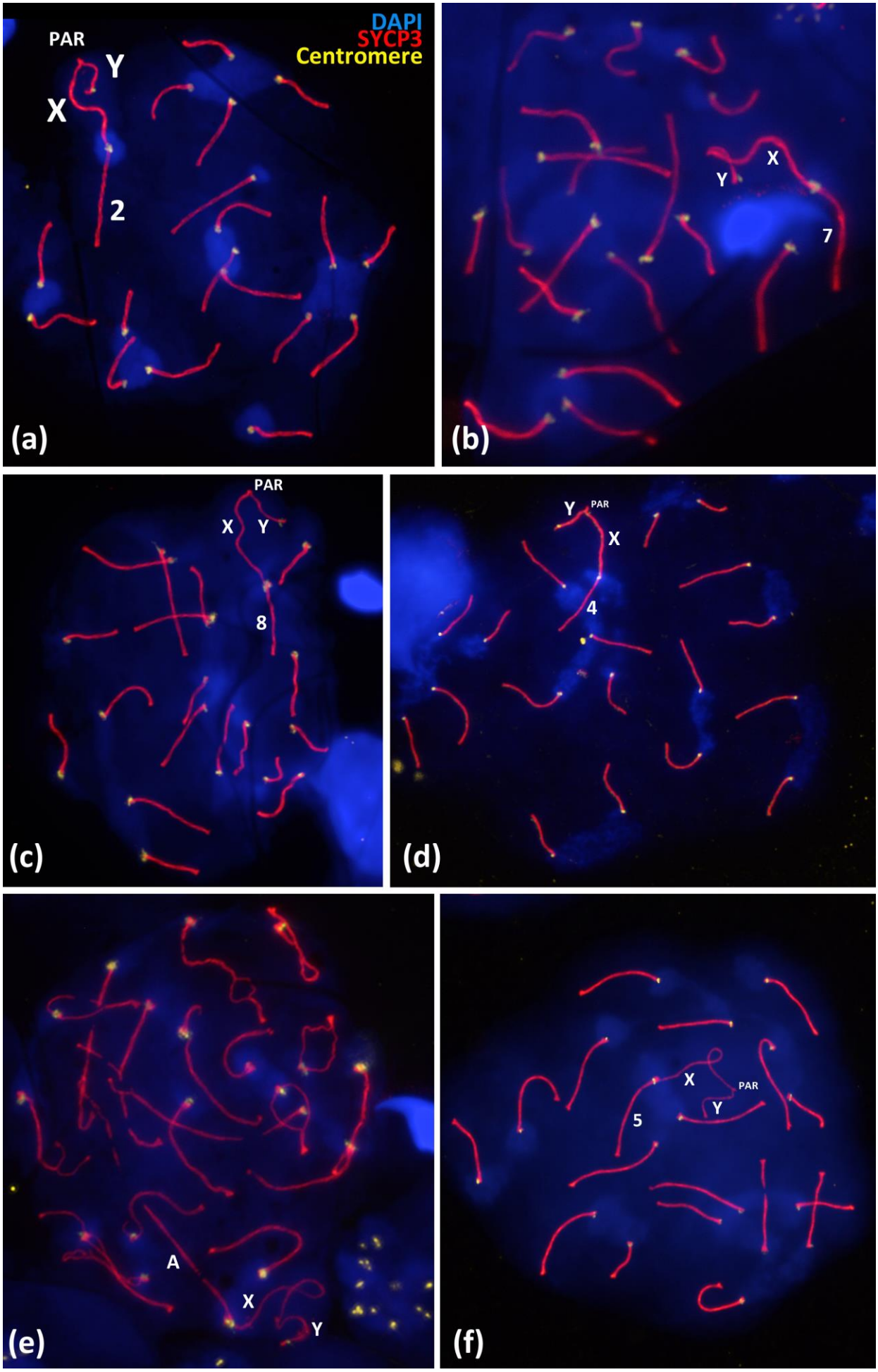

Figure SM3. Associations between centromeric regions of autosomal chromosomes and X chromosome in BALB/c mouse meiotic nuclei. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow)

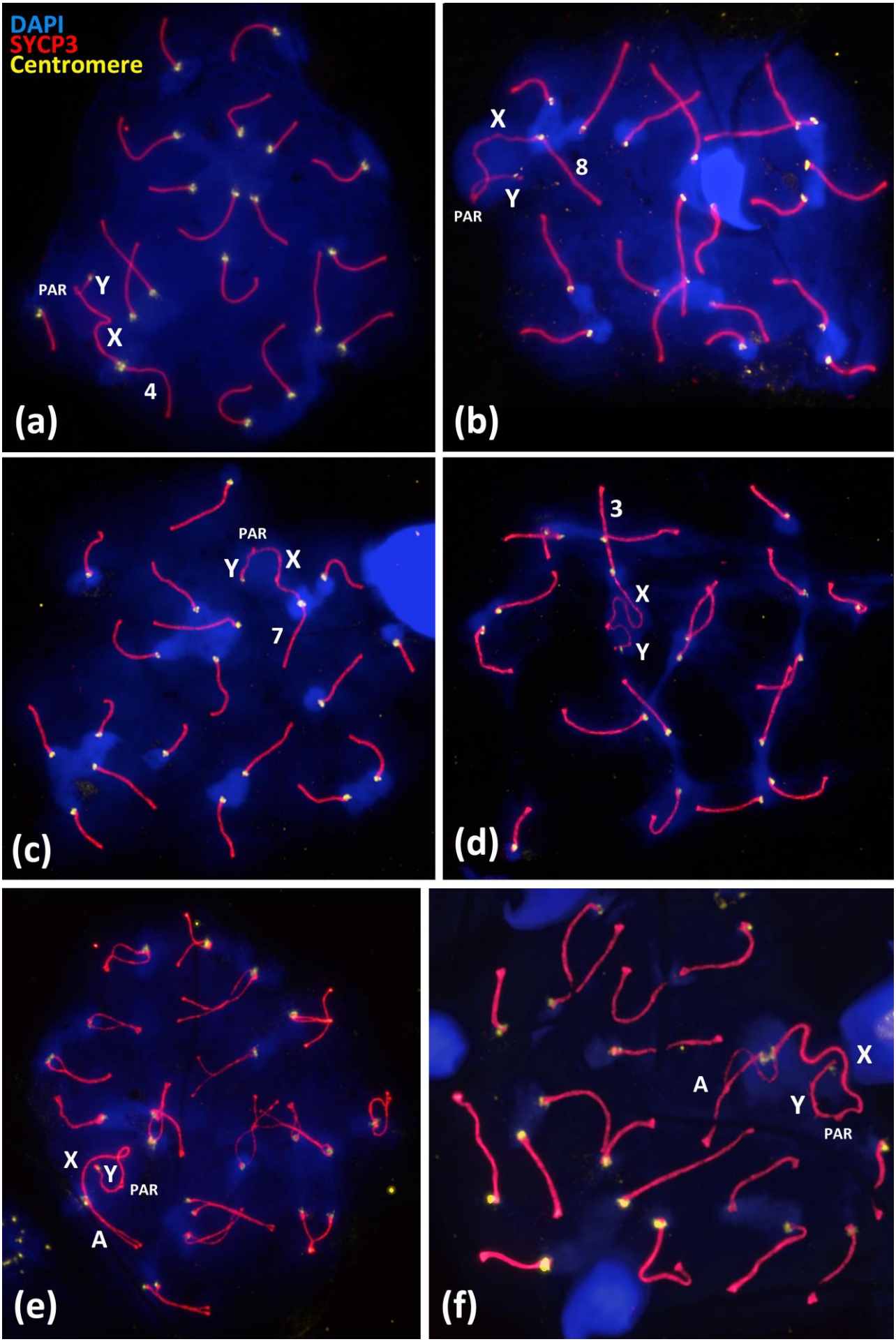

Figure SM4. Associations between centromeric regions of autosomal chromosomes and X chromosome in BALB/c mouse meiotic nuclei. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow)

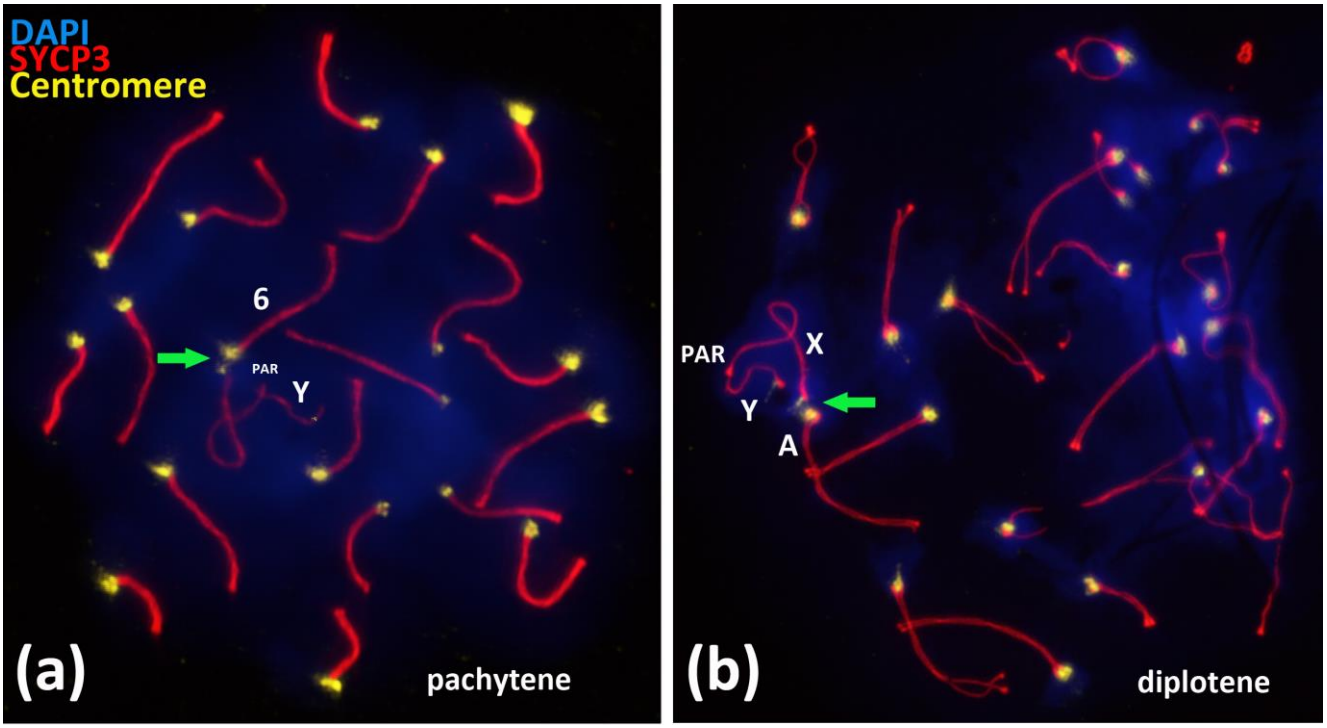

Figure SM5. Disrupted associations between centromeric regions of autosomal chromosomes and X chromosome in BALB/c mouse meiotic nuclei in pachytene (a) and diplotene (b). Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow).

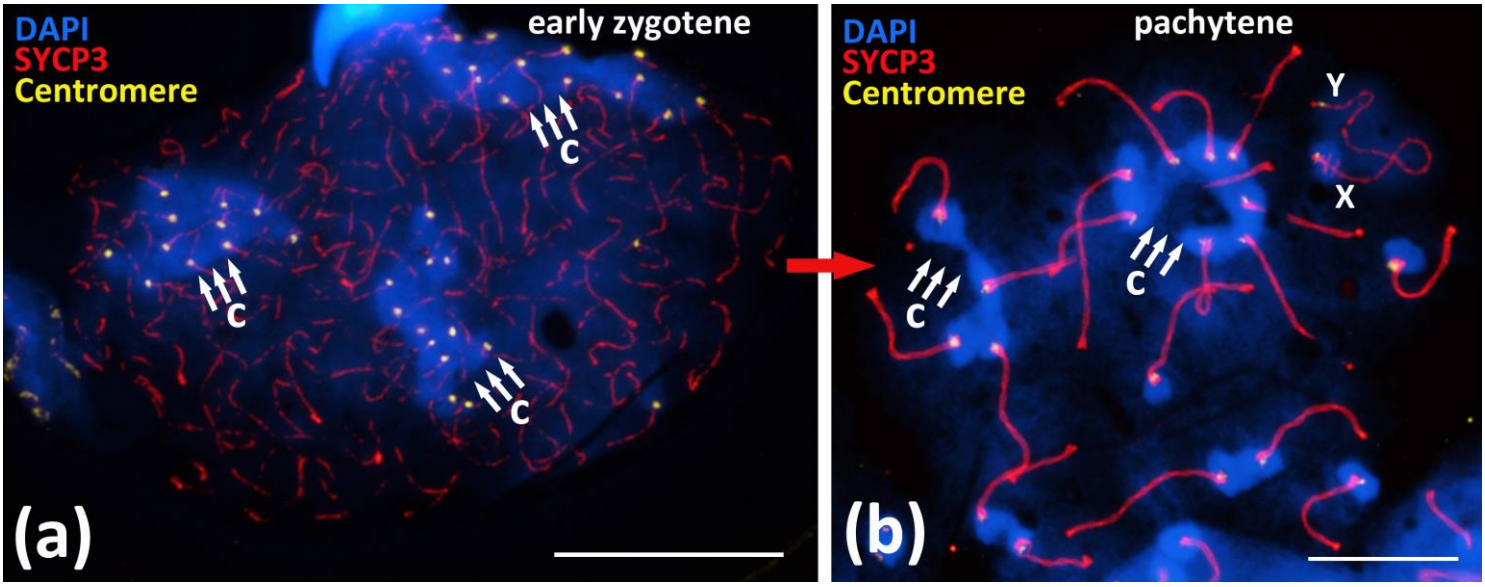

Figure SM6. Chromocenters in early zygotene (a) and pachytene (b) in BALB/c mouse. Residual clustering of chromocenters, composed of pericentromeric DAPI-rich regions of bivalents indicated by triple arrows (b). Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow). Scale bar – 10 μm.

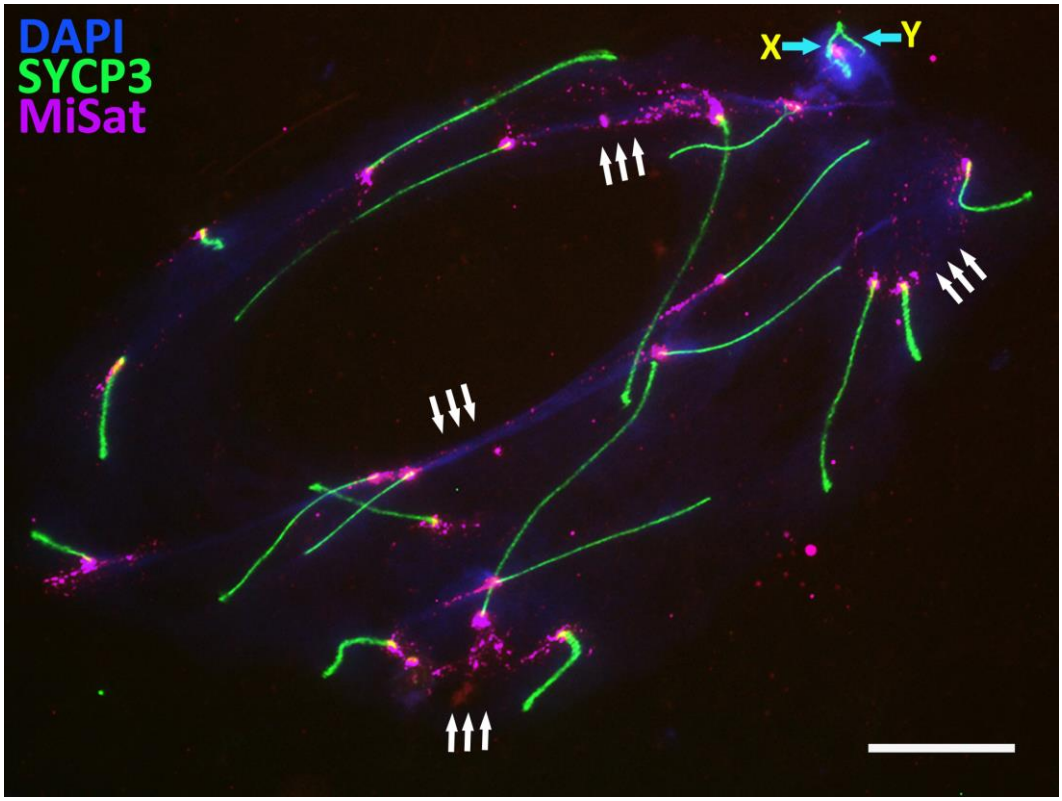

Figure SM7. Immuno-FISH with oligo-DNA probes to Minor satellite DNA (MiSat, violet) in the spread preparation of meiotic nucleus BALB/c mouse. X and Y chromosomes are indicated. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were stained with the antibodies against the SYCP3 protein (green). Scale bar – 10 μm.

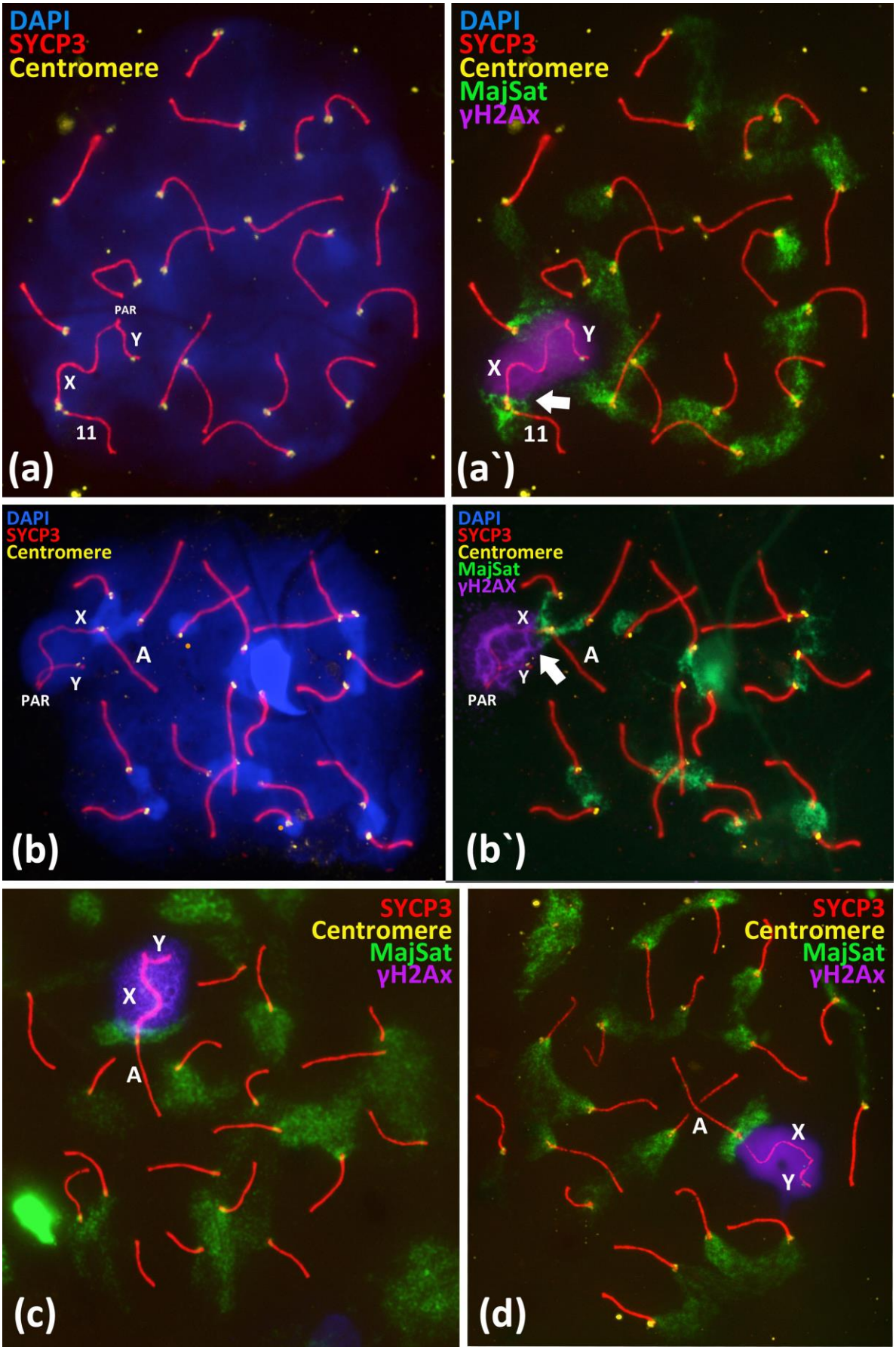

Figure SM8. Immuno-FISH identification of MSCI in the associations between Major satellite DNA of X chromosome and autosomal chromocenters. Inactivated chromatin of "sex body" and MajSat DNA are spatially separated (a-d). Chromatin was stained with DAPI (blue), FISH with oligo-DNA probes to Major Satellite DNA (MajSat, green). Axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were immunostained with the ACA antibodies (yellow), chromatin of sex bivalent was immunostained with the anti-γH2AX antibodies (violet). Sex chromosomes are indicated "X" and "Y", associated autosomal bivalent – "A".

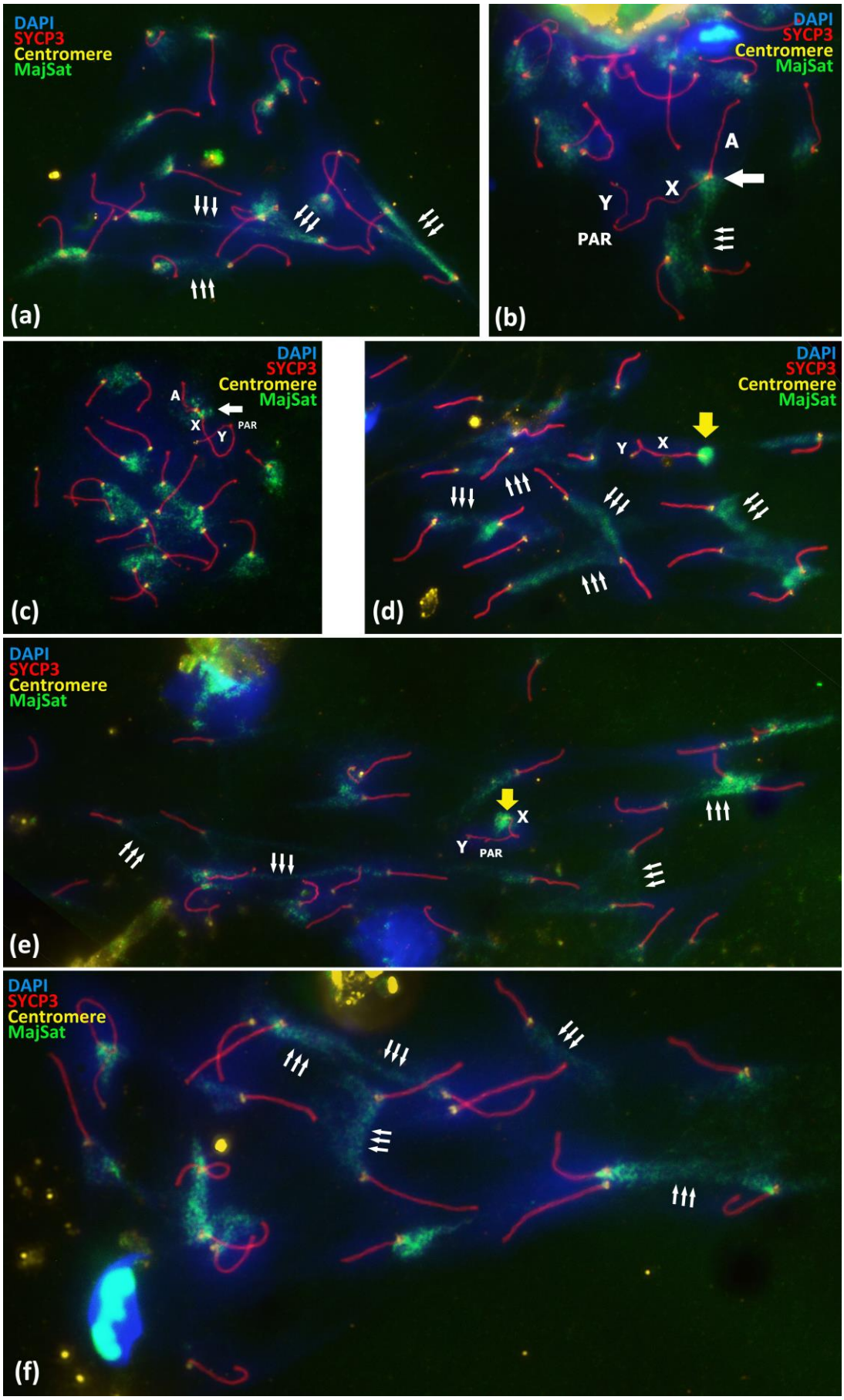

Figure SM9. Immuno-FISH study of the Major satellite DNA localization in the pachytene nuclei spread preparations under different spreading conditions, BALB/c mouse. Interbivalental stretched chromatin fibers enriched in MajSat DNA (green) are indicated with triple arrows (a-f). MajSat DNA of X chromosome associated with autosomal chromocenters indicated with single white arrow (b,c). MajSat DNA of X chromosome non-associated with autosomal chromocenters indicated with yellow arrow (d,e).

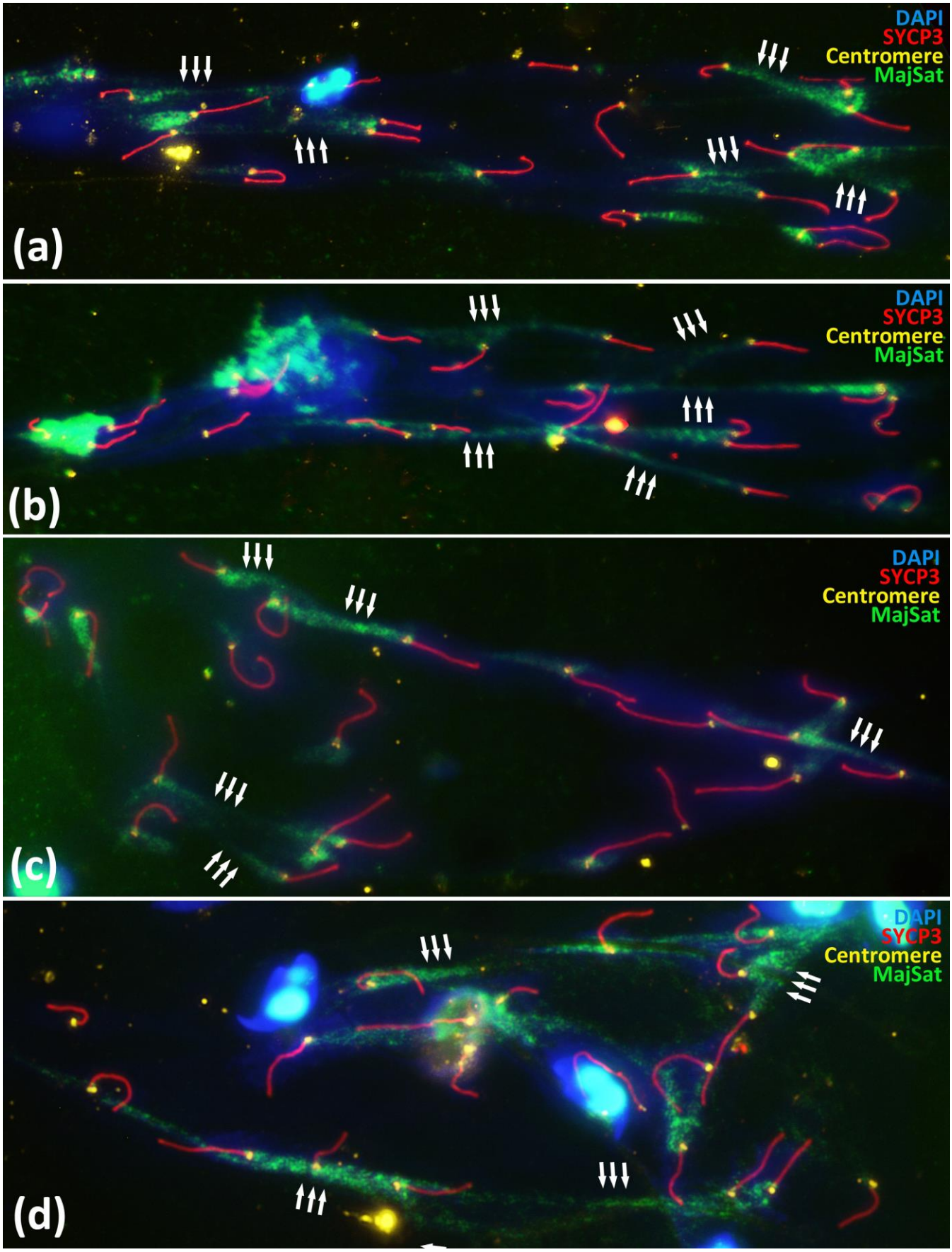

Figure SM10. Immuno-FISH study of the Major satellite DNA localization in the pachytene nuclei spread preparations under different spreading conditions, BALB/c mouse. Interbivalental stretched chromatin fibers enriched in MajSat DNA (green) are indicated with triple arrows (a-d).

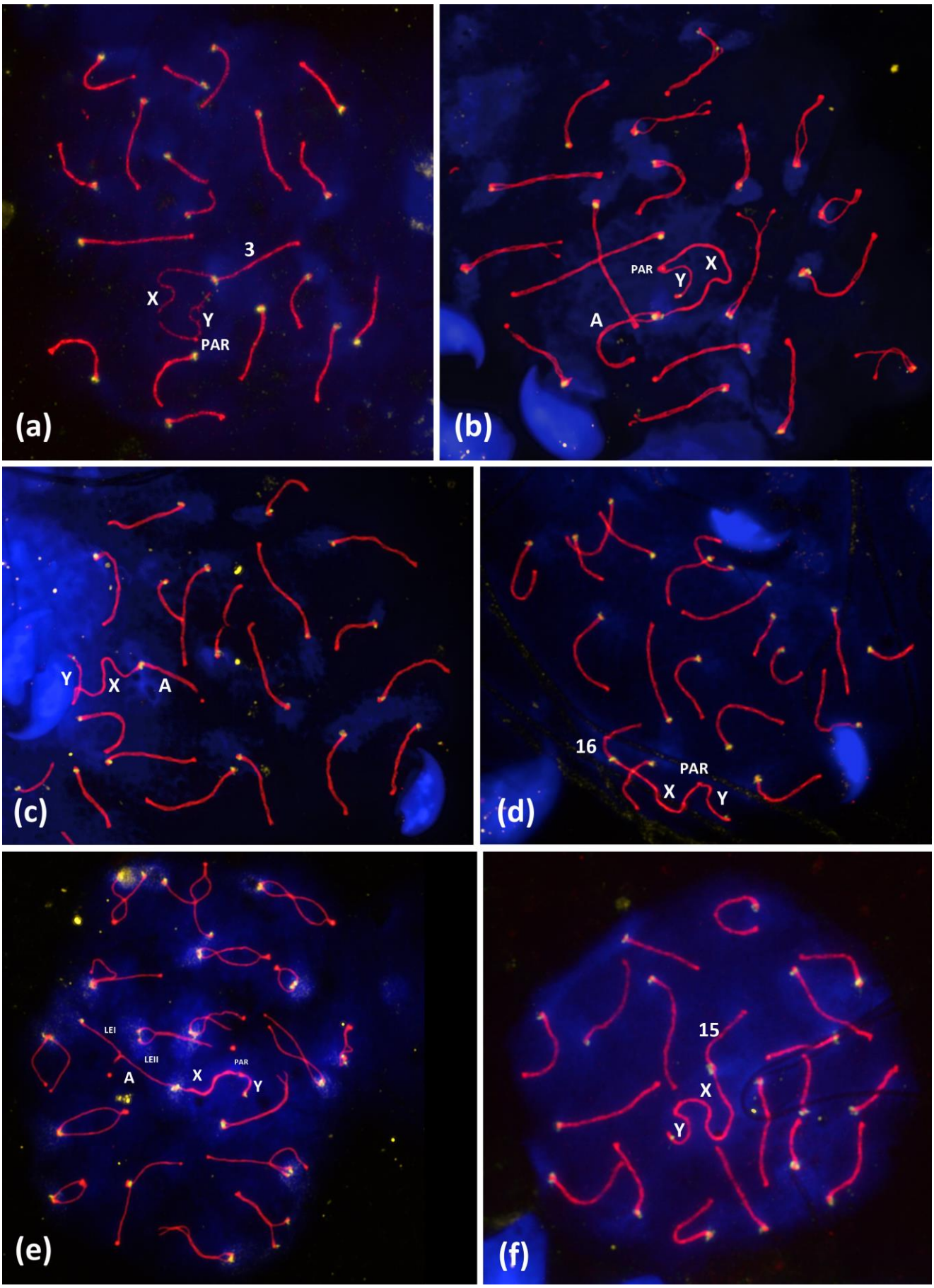

Figure SM11. Associations between centromeric regions of autosomal chromosomes and X chromosome in CBA mouse meiotic nuclei. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow)

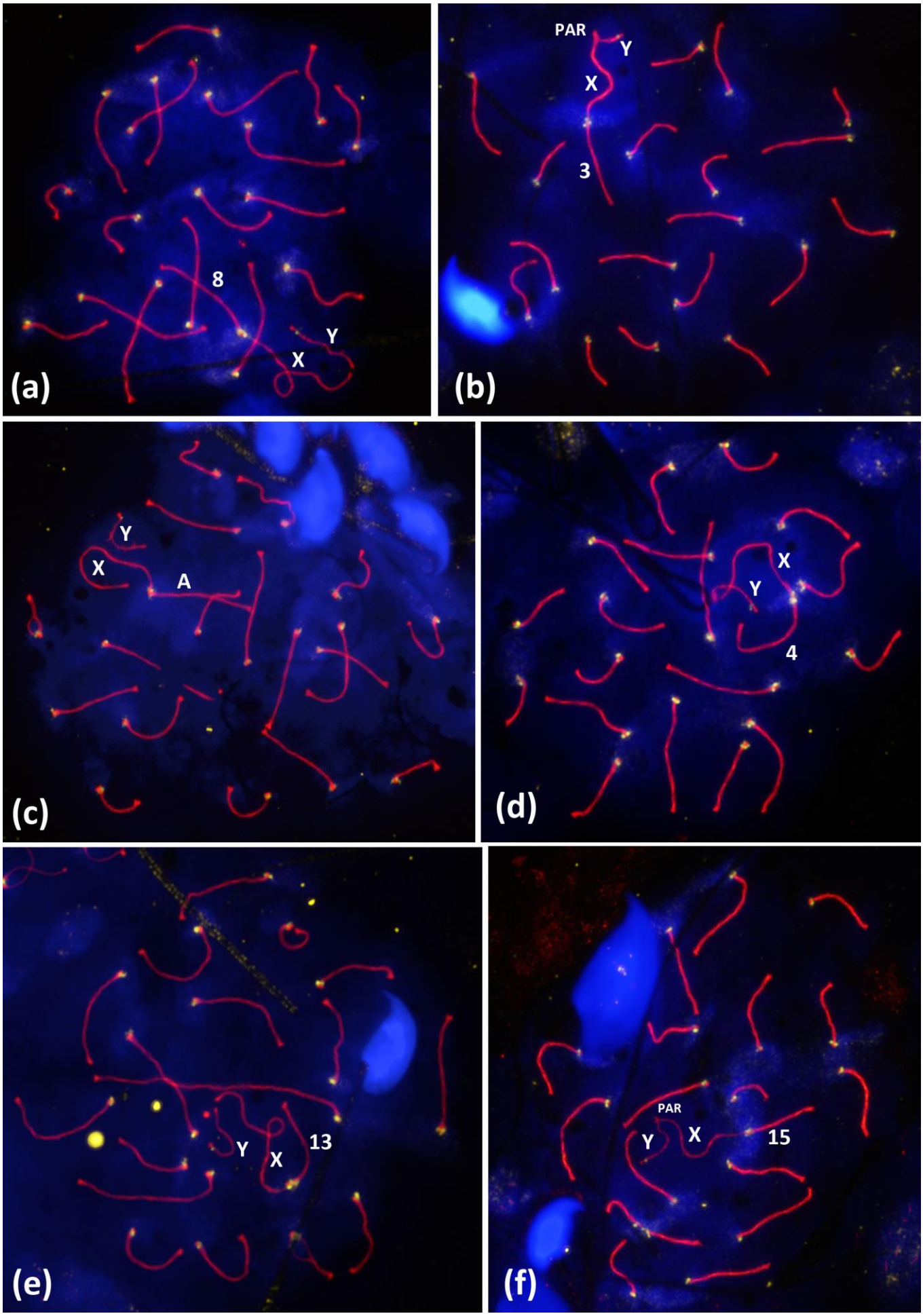

Figure SM12. Associations between centromeric regions of autosomal chromosomes and X chromosome in CBA mouse meiotic nuclei. Chromatin was stained with DAPI (blue), axial elements of meiotic chromosomes were immunostained with the antibodies against the SYCP3 protein (red), centromeres were stained with the ACA antibodies (yellow)