

Supporting Information

The Control of the Crossover Localization in *Allium*

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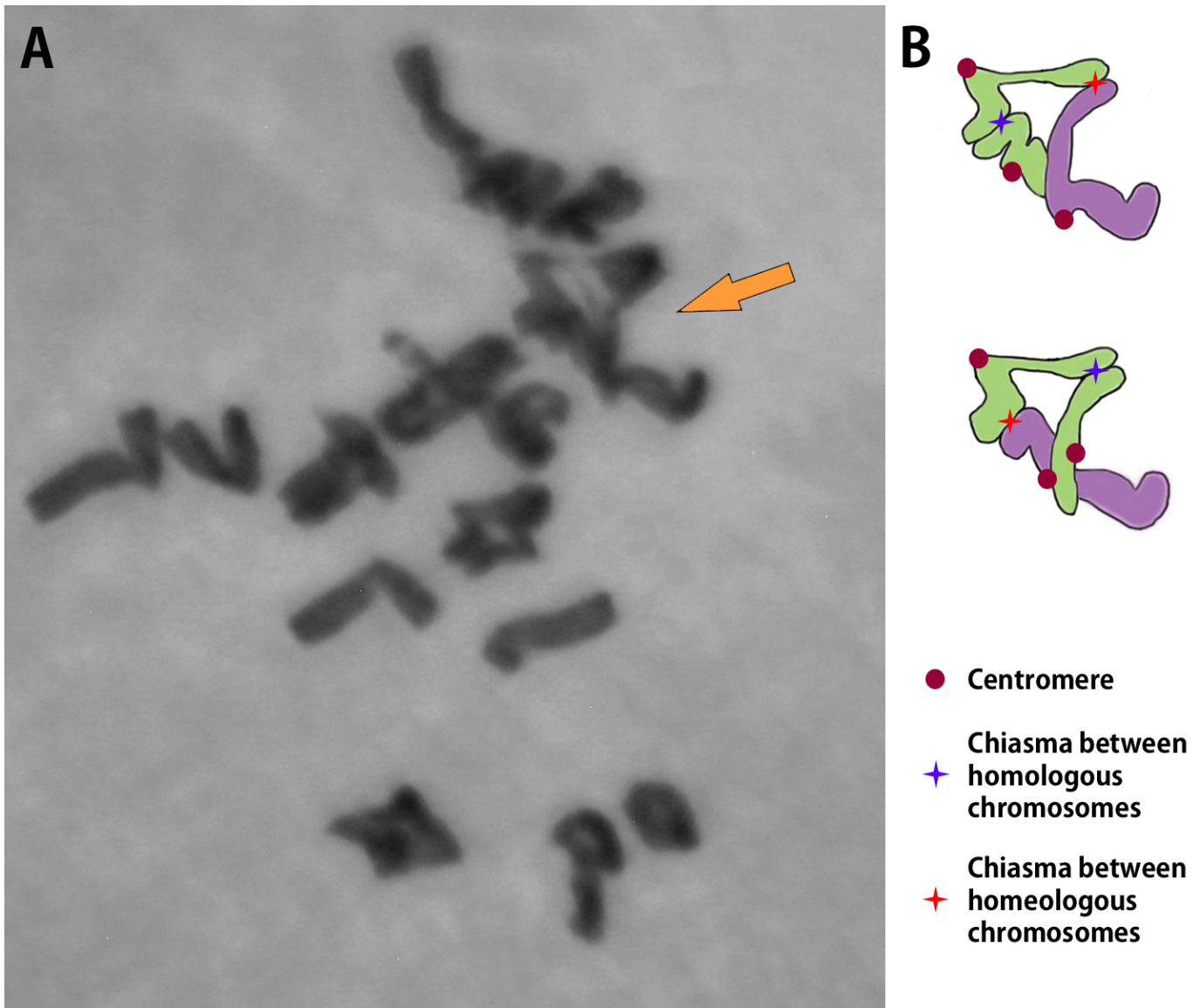


Figure S1. Meiotic metaphase I of F₁ triploid hybrid (*A. cepa* × *A. fistulosum*) ($2n = 3x = 16F+8C$) with trivalent (arrow) (**A**) and graphical interpretation of possible conformation of this trivalent (**B**). According to the first trivalent scheme: the homologous chromosomes of *A. fistulosum* (green) formed a chiasma in the short arm, and the chromosome of *A. cepa* (violet) formed a chiasma with the chromosome of *A. fistulosum* in the long arm. According to the second scheme: the *A. cepa* and *A. fistulosum* chromosomes formed a chiasma in the short arm, while two homologous of *A. fistulosum* formed a chiasma in the long arm.

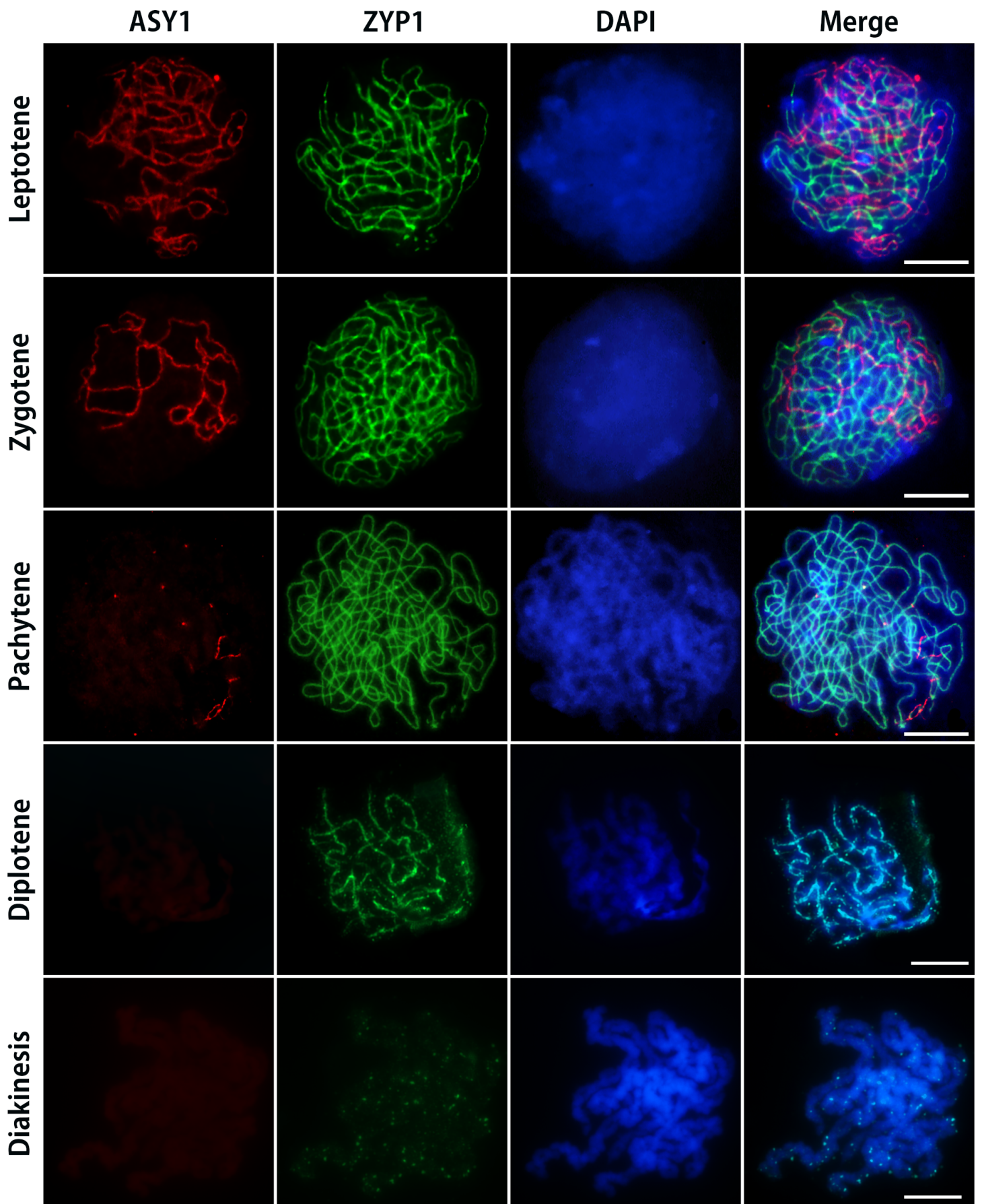


Figure S2. Synaptonemal complex formation in *A. cepa*. Nuclei at different meiotic stages immunostained with ASY1 (red) and ZYP1 (green) with DAPI counterstain (blue). Bar = 10 μ m. At pachytene, all homologous are synapsed. At diakinesis, complete disassembly of the SC with ball-like structures of ZYP1 signals occurs.

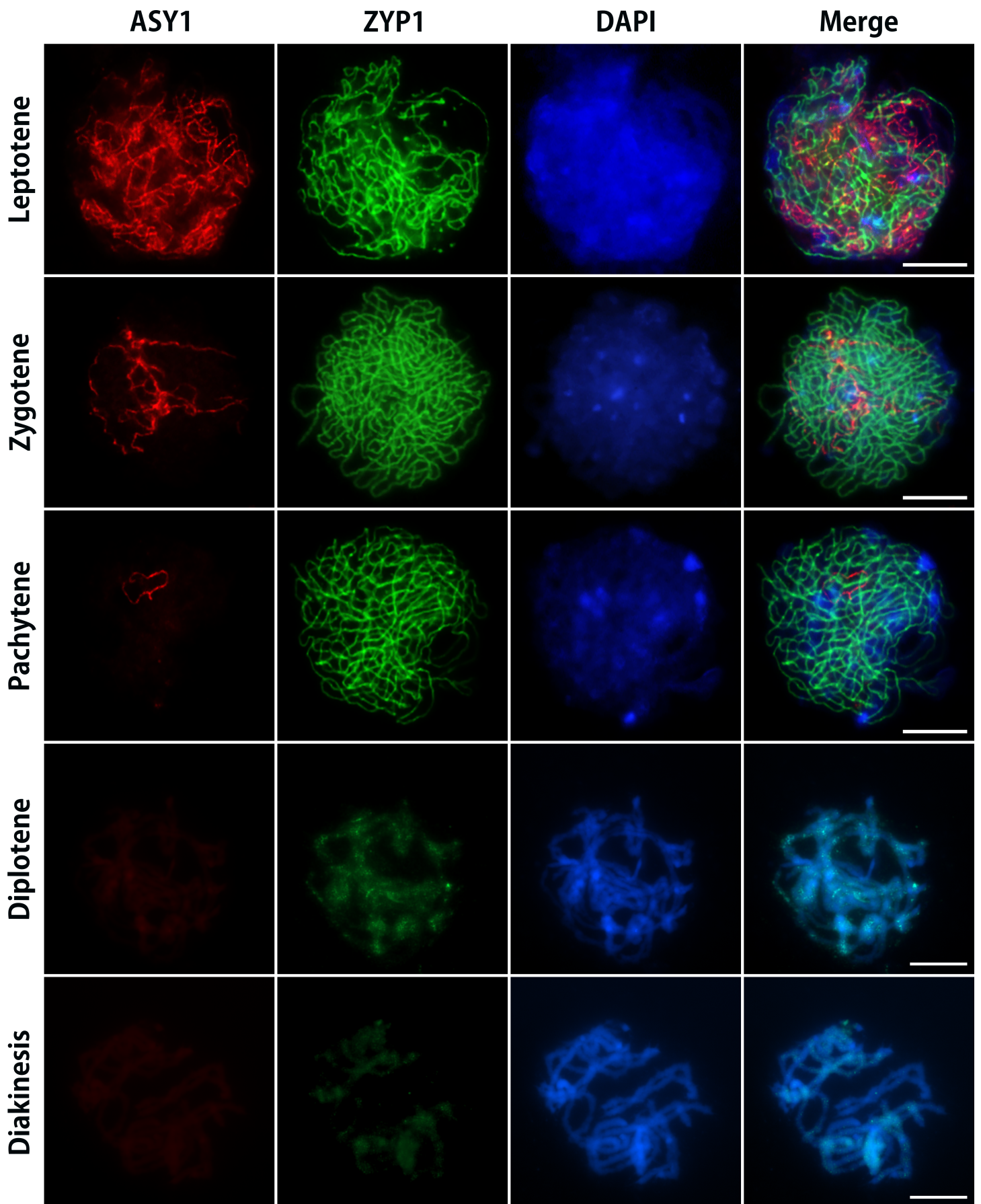


Figure S3. Synaptonemal complex formation in *A. fistulosum*. Nuclei at different meiotic stages immunostained with ASY1 (red) and ZYP1 (green) with DAPI counterstain (blue). Bar = 10 μ m. At pachytene, all homologous are synapsed. At diakinesis, complete disassembly of the SC with ball-like structures of ZYP1 signals occurs.

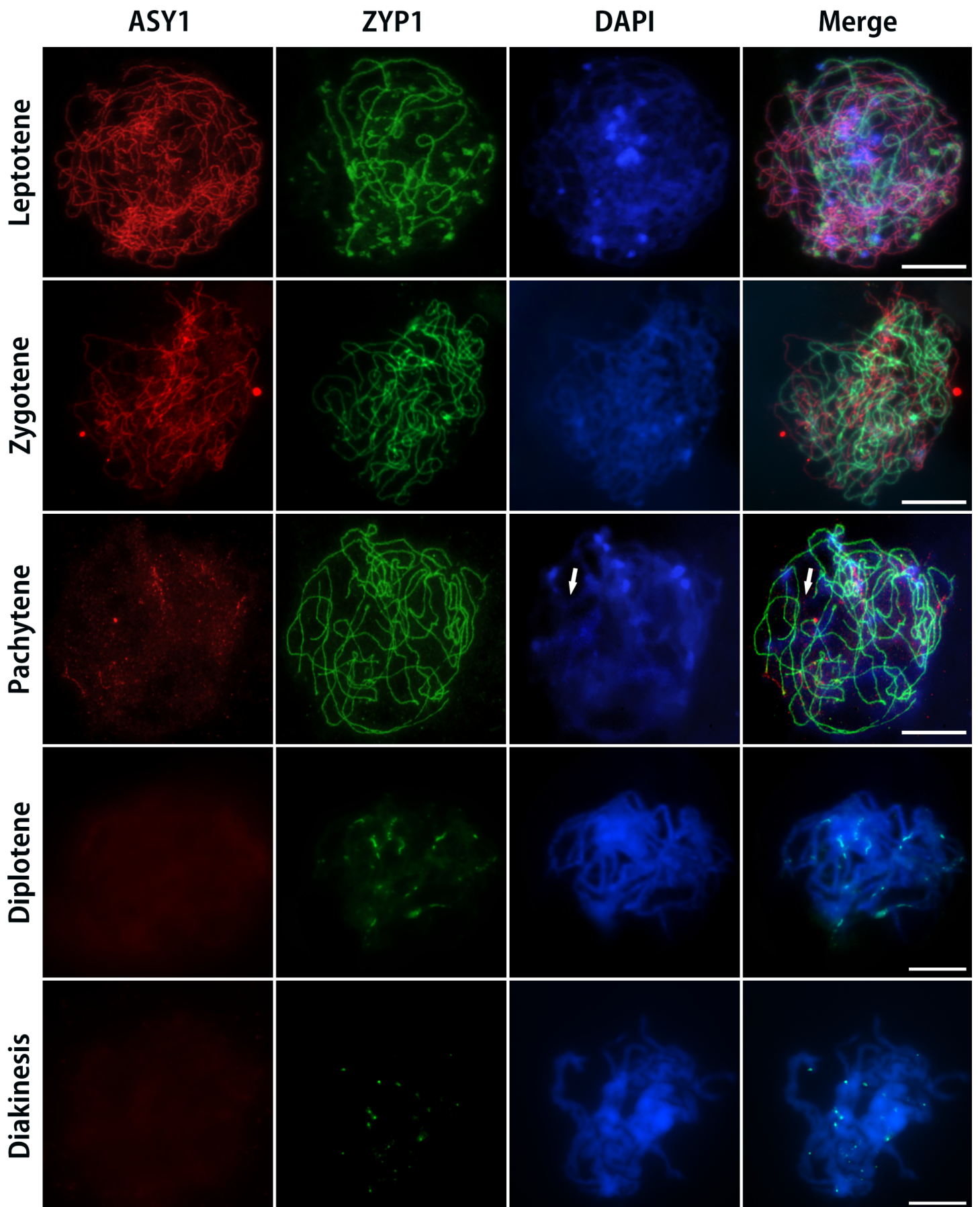


Figure S4. Synaptonemal complex formation in F_1 diploid hybrid (*A. cepa* \times *A. fistulosum*) ($2n = 2x = 8F+8C$). Nuclei at different meiotic stages immunostained with ASY1 (red) and ZYP1 (green) with DAPI counterstain (blue). Bar = 10 μ m. From leptotene to pachytene, synapsis delay was occurring between the chromosomes of *A. cepa* and *A. fistulosum*. The arrow indicates non-synapsed region between homeologous chromosomes. At diakinesis, complete disassembly of the SC with ball-like structures of ZYP1 signals occurs.

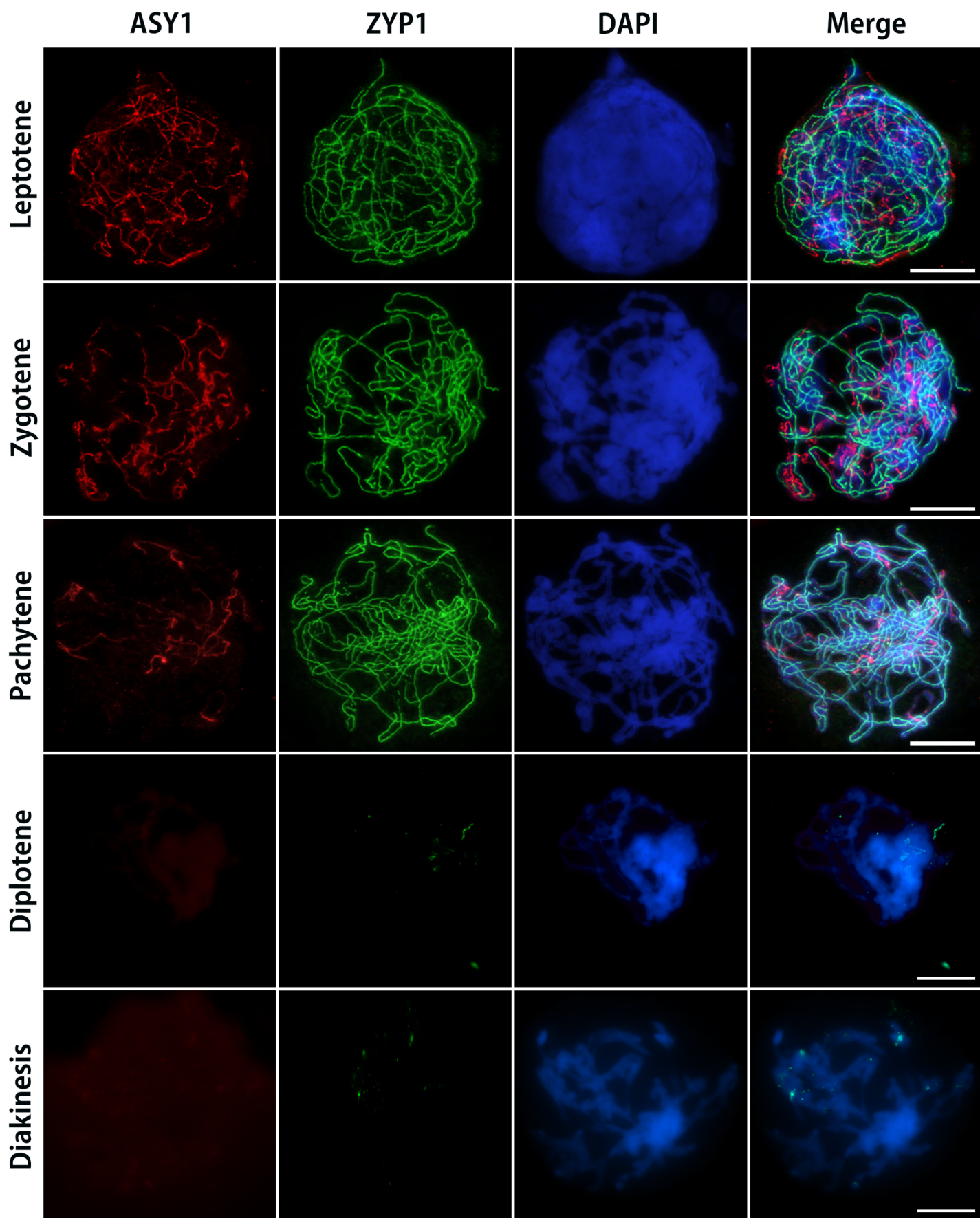


Figure S5. Synaptonemal complex formation in F₁ triploid hybrid (*A. cepa* × *A. fistulosum*) ($2n = 3x = 16F+8C$). Nuclei at different meiotic stages immunostained with ASY1 (red) and ZYP1 (green) with DAPI counterstain (blue). Bar = 10 μ m. At pachytene, ASY1 long tracks can be explained by the presence of an unpaired set of *A. cepa* chromosomes, while short tracks of ASY1 probably derived from homoeologous chromosome pairing. At diakinesis, complete disassembly of the SC with ball-like structures of ZYP1 signals occurs.

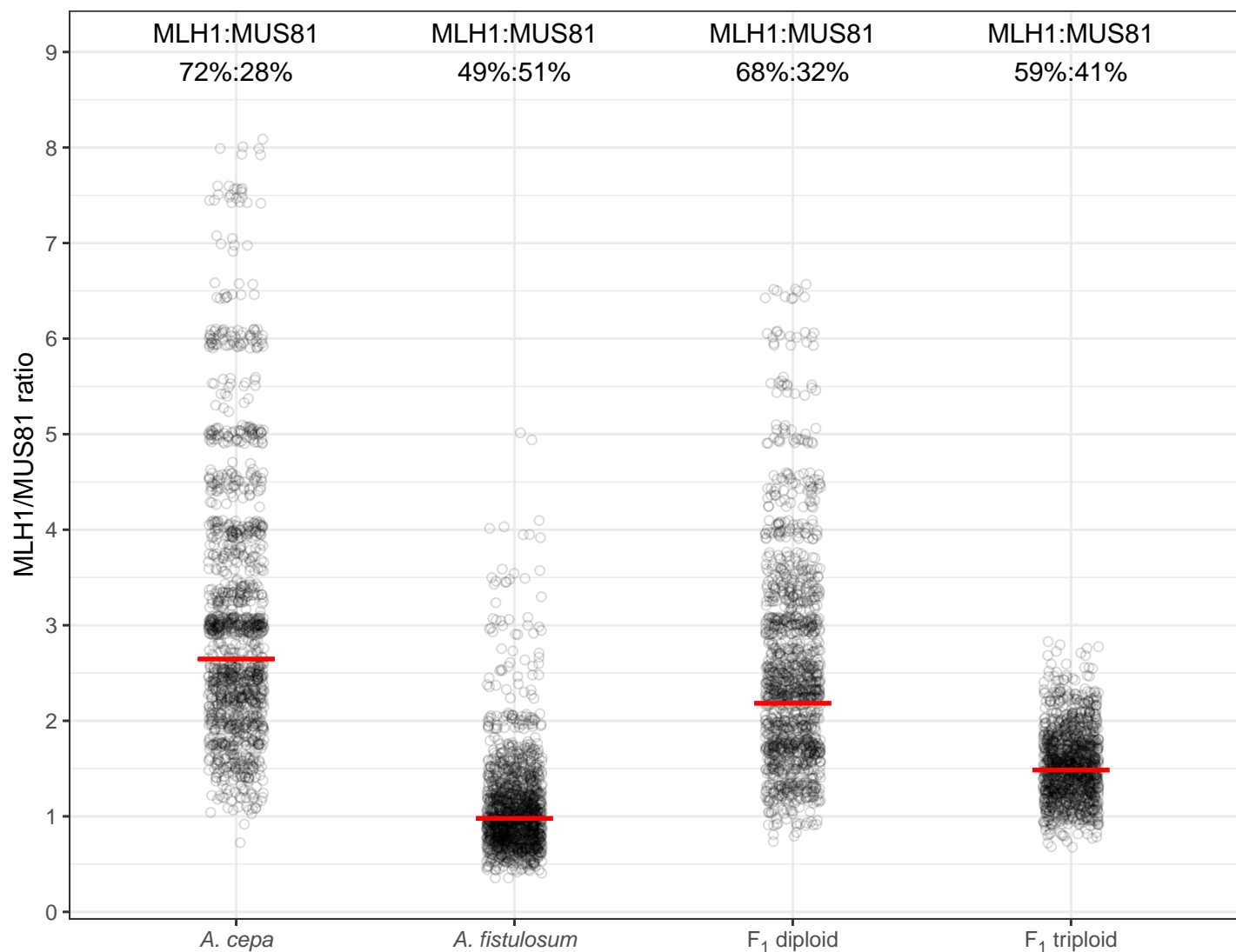


Figure S6. Distribution of MLH1/MUS81 ratio in all possible combinations of counted MLH1 and MUS81 foci per cell for *A. cepa*, *A. fistulosum*, F₁ (*A. cepa* × *A. fistulosum*) diploid and triploid hybrids. Red lines – weighted means with inverse weights in order to compensate effect from combinations with extreme MLH1/MUS81 ratios appearing because of artificial nature of generated population.

Table S1. Pairwise comparisons of MLH1 and MUS81 mean foci number per cell in *A. cepa*, *A. fistulosum*, F₁ (*A. cepa* × *A. fistulosum*) diploid and triploid hybrids.

a. MLH1

Pairwise comparison	Observed mean foci per cell difference	<i>P</i> value ^a
<i>A. cepa</i> – <i>A. fistulosum</i>	4.6	<0.001
<i>A. cepa</i> – F ₁ diploid hybrid ^b	2.6	<0.001
<i>A. cepa</i> – F ₁ triploid hybrid ^c	2.6	<0.001
<i>A. fistulosum</i> – F ₁ diploid hybrid	-2.0	<0.001
<i>A. fistulosum</i> – F ₁ triploid hybrid	-2.0	<0.001
F ₁ diploid hybrid – F ₁ triploid hybrid	0.0	0.8

b. MUS81

Pairwise comparison	Observed mean foci per cell difference	<i>P</i> value ^a
<i>A. cepa</i> – <i>A. fistulosum</i>	-2.4	<0.001
<i>A. cepa</i> – F ₁ diploid hybrid	0.5	0.21
<i>A. cepa</i> – F ₁ triploid hybrid	-1.6	<0.001
<i>A. fistulosum</i> – F ₁ diploid hybrid	2.9	<0.001
<i>A. fistulosum</i> – F ₁ triploid hybrid	0.8	0.01
F ₁ diploid hybrid – F ₁ triploid hybrid	-2.1	<0.001

^a Wilcoxon test, FDR 5% corrected

^b $2n = 2x = 8F+8C$

^c $2n = 3x = 16F+8C$