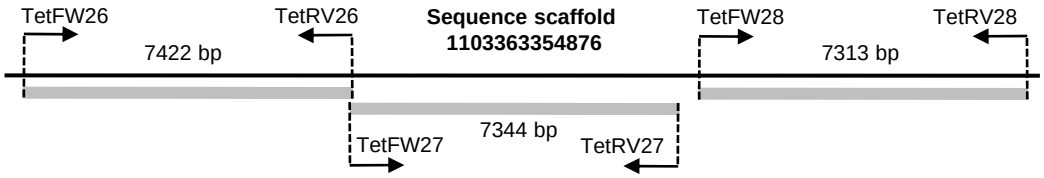
Supplemental Figure S1

Primers for PCR amplification of three neighbouring regions on sequence scaffold 1103363354876 for use as a compound FISH probe. Total length of the covered region is 22.624 bp, including a 545 bp gap.



TetFW26 5'- CTC TGA TAA TAG ATG GGC C -3'

TetRV26 5'- TCT TCT TCC TTC GAA CCG -3'

TetFW27 5'- GTT GAA AGG GAA GGT GAG -3'

TetRV27 5'- ATA GTG CGT CTT TGC GAC -3'

TetFW28 5'- ATA CCC GAA TGG ATG AGC -3'

TetRV28 5'- ATT AGG TCT TGA ACC GCC -3'

Supplemental Table S2

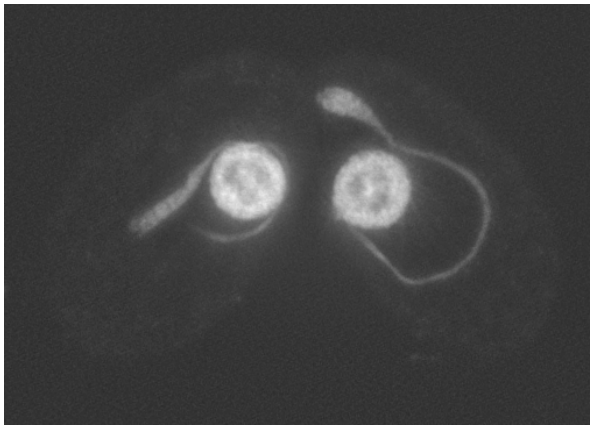
Percentages of MICs with the indicated morphology in different genotypes and upon treatment of wild-type conjugants with benomyl (5 µg/ml), nocodazole (10 µg/ml), caffeine (10 mM) and wortmannin (2 µM). Evaluation was done at t=3.5 h after induction of meiosis by the mixing of starving colonies of different mating types. For each experiment 200 MICs were evaluated, and only MICs of conjugating cells were included. All chemicals prevented the formation of fully elongated (stage IV) crescents, but nuclei became enlarged in all cases. Notably, wortmannin-treated MICs reached about half the diameter of MACs. 4% of the wortmannin-treated MICs were spindle-shaped but stretched into thin appendices at one or both ends. These are interpreted as incipient crescent formation. Irregularly shaped MICs of the *spo11*Δ mutant and of caffeine-treated wild type were elongated but had protrusions in addition to the two poles.

	Morphology of MICs (%)						
	Round-egg shaped	Round enlarged	Barrel- to spindle-shaped	Stretched spindle	Irregular shape	**Fully elongated**	Later stages
Wild type	11	0	14	0	0	**55**	20
*spo11*Δ	18.5	0	73.5	0	6	**0**	2
*atr1*Δ	5	0	86.5	0	7	**0.5**	
Benomyl	92	0	8	0	0	**0**	0
Nocodazole	34	62	4				
Caffeine	18	1.5	75.5	0	5	**0**	0
Wortmannin	13.5	52.5	30	4	0	**0**	0

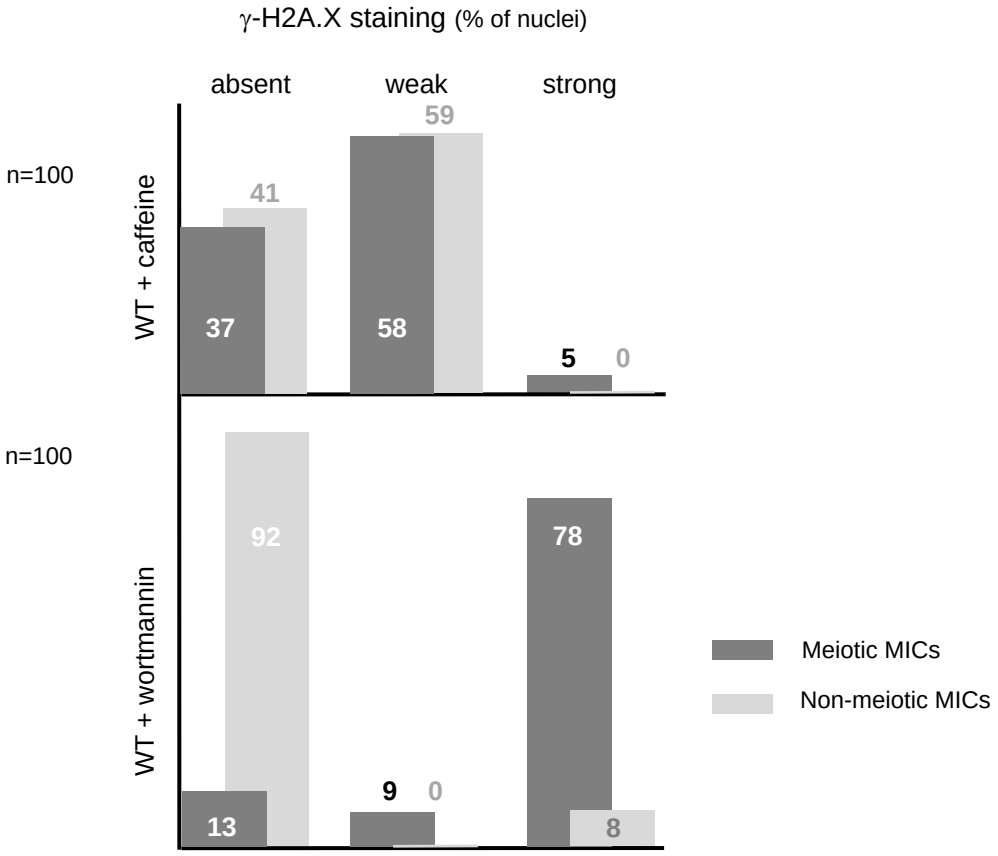
Supplemental Table S3

Dose response of MIC elongation to the concentration of wortmannin. Percentages of MICs of the indicated shapes 3.5 h after induction of meiosis are shown. 200 MICs were evaluated for each wortmannin concentration. Normal MIC elongation was completely suppressed at a concentration of 2 µM. These MICs increased in size but only rarely assumed an oblong (barrel-) shape or displayed protrusions which may be interpreted as attempted crescent formation. The inhibitory effect of wortmannin on MIC elongation showed a steep decrease: At concentrations of 1 µM – 125 nM, the frequencies of crescent-shaped MICs were similar to the untreated control, but the majority of these MICs displayed bulges or other irregularities (see example below). The other MICs observed corresponded to stage I (2 µM wortmannin) or stages I-III and post-IV (1 µM – 0 wortmannin).

	Wortmannin concentration					
MIC shape	2 µM	1 µM	500 nM	250 nM	125 nM	0
Wild-type crescent	0	2%	3.5%	9%	3%	68%
Abnormal crescent	0	74%	69%	62%	67.5%	0
Barrel-shaped	13.5%	0	0	0	0	0
Large spherical	53.5%	0	0	0	0	0
Spherical with protrusion	3.5%	0	0	0	0	0
Other	29.5%	24%	27.5%	29%	29.5%	32%



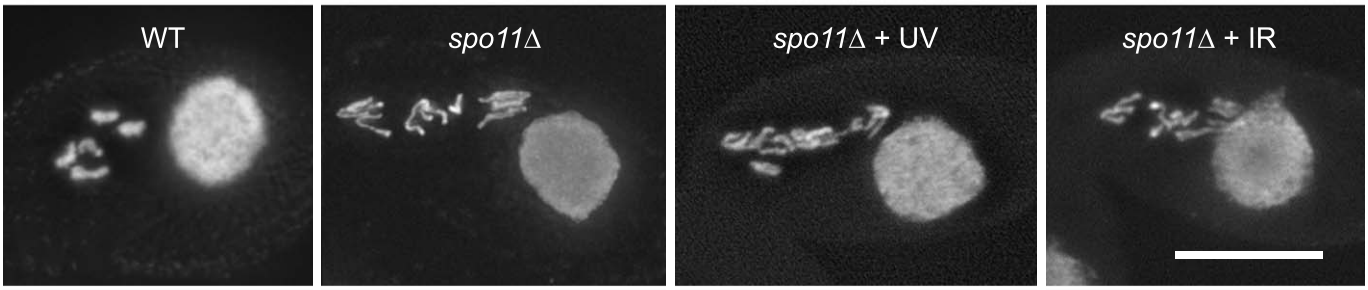
Supplemental Figure S4



The residual γ-H2A.X staining found in MICs after treatment with the kinase inhibitor caffeine may be an unspecific response to the drug, since it appeared similarly in non-meiotic MICs. Therefore, it is possible that caffeine inhibits H2A.X phosphorylation, as would be expected from the inhibition of a central kinase in the DNA damage response pathway.

In the case of wortmannin treatment, strong γ-H2A.X staining was found in non-elongated meiotic MICs. It is possible that the dosage that inhibits MIC elongation is not sufficient to prevent H2A.X phosphorylation by a pathway depending on ATM and/or ATR homologues.

Supplemental Figure S5



While in the wild type (WT) 5 bivalents are present in diakinesis, chromosomes remained univalent in the *spo11*Δ mutant. We were unable to restore bivalent formation by UV or ionizing radiation (IR). Bar: 10 µm.