

## Aberystwyth University

### *CDKG1 protein kinase is essential for synapsis and male meiosis at high ambient temperature in Arabidopsis thaliana*

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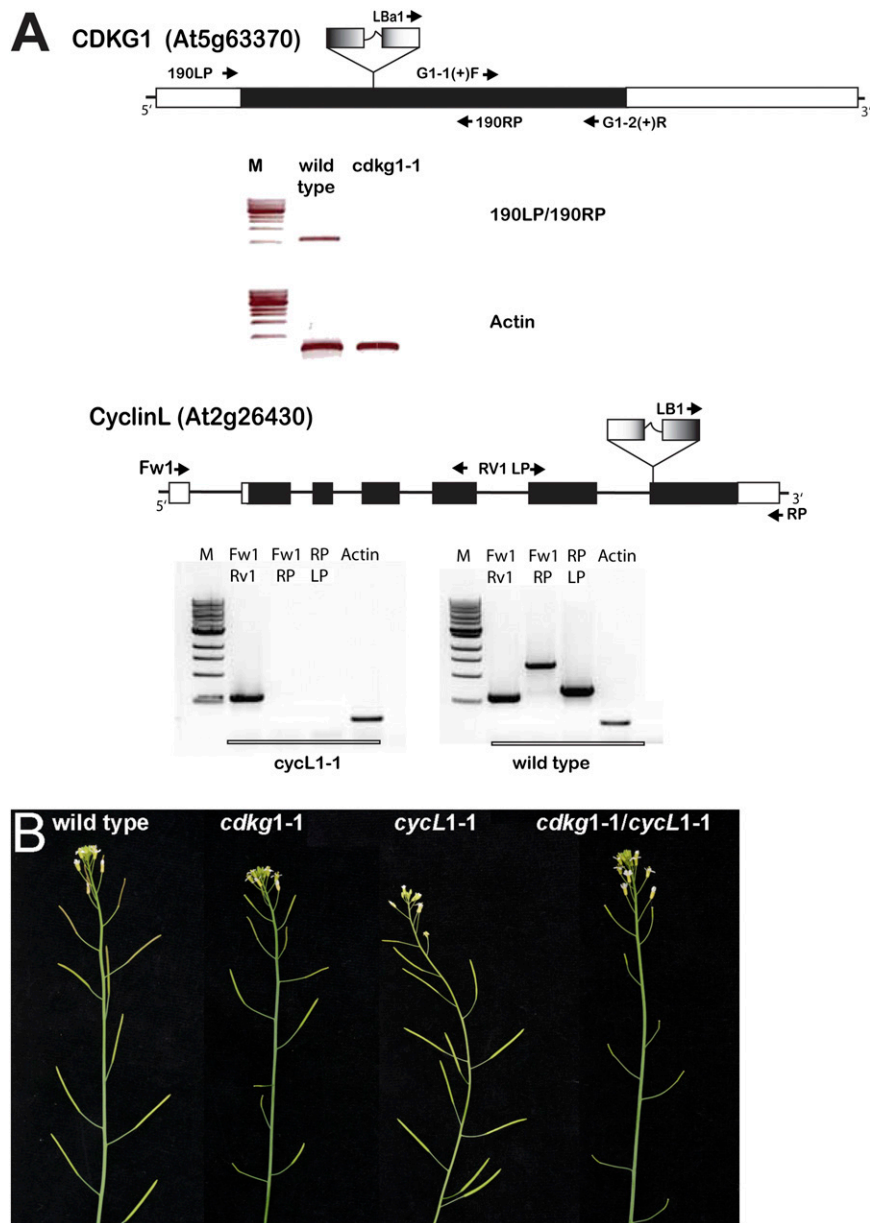
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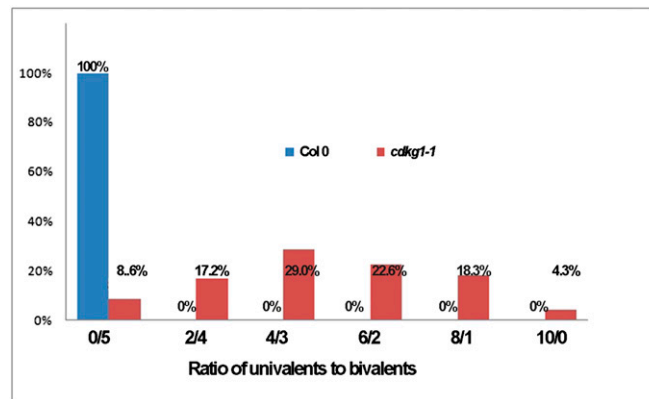
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# Supporting Information

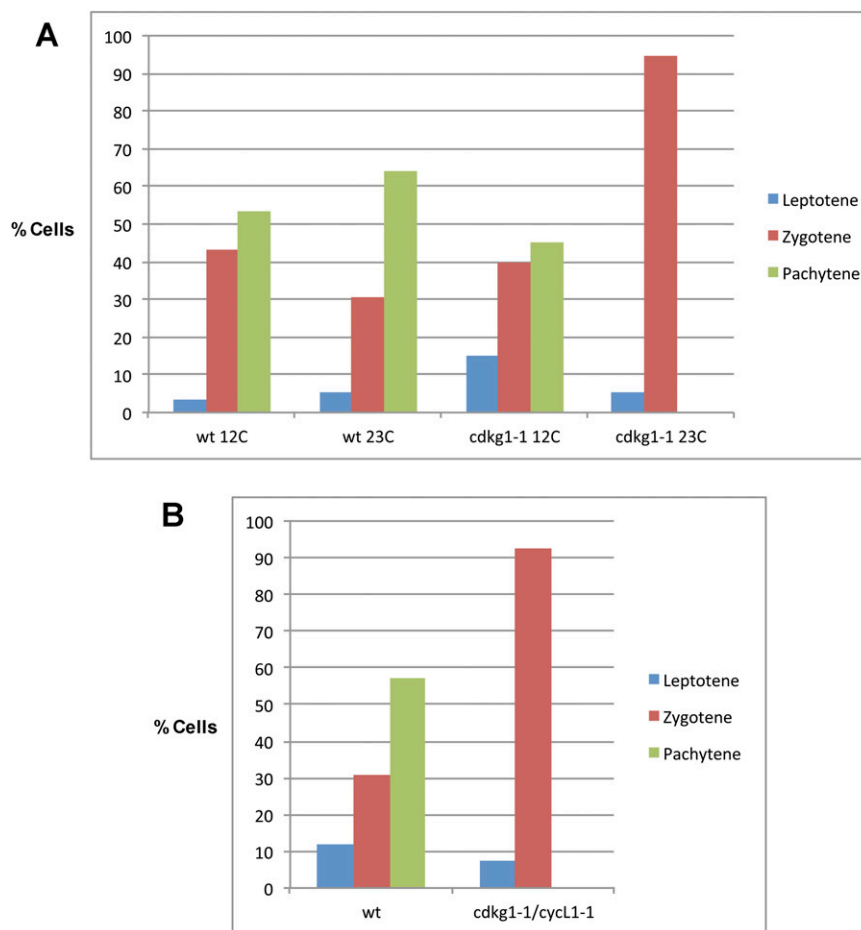
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**Fig. S1.** (A) Schematic representation of the T-DNA insertions in *cdkg1-1* and *cycl1-1*, positions of primers used in the study, and RT-PCR confirmation of the insertion sites. Primer sequences are provided in Table S2. (B) Phenotypic consequences of *cdkg1-1* and *cycl1-1* on fertility.

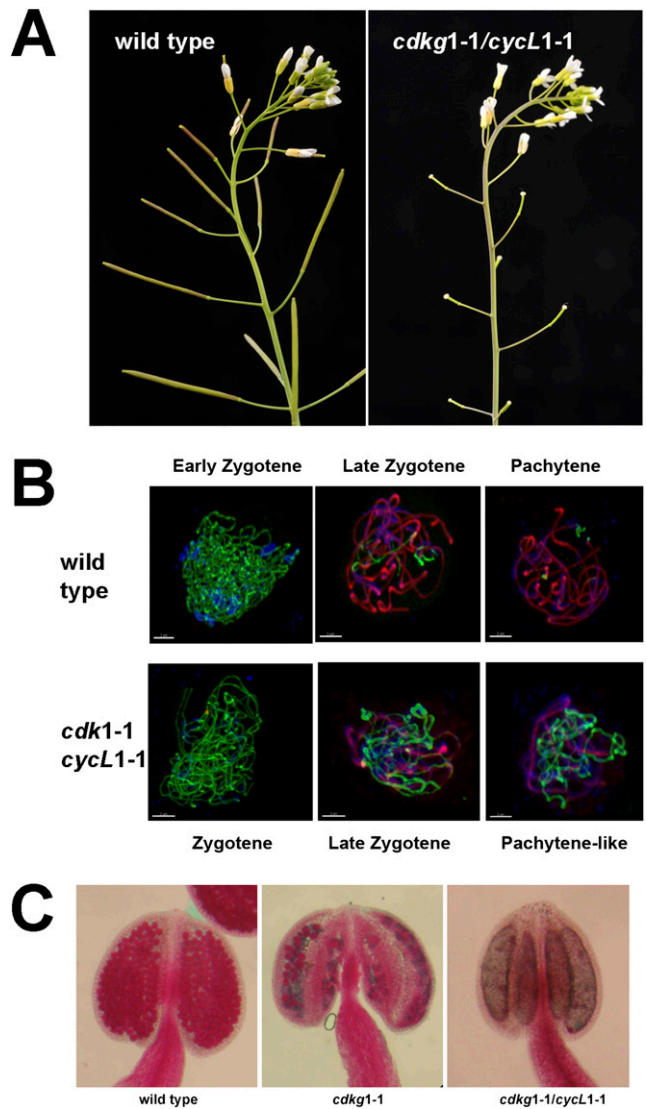


**Fig. S2.** Effect of *cdkg1-1* on bivalent formation. The bars illustrate the ratio of univalent and bivalents in individual cells at metaphase I (red bars represents *cdkg1-1*,  $n = 93$ ; the blue bar represents WT cells,  $n = 37$ ) from plants grown under greenhouse conditions.



**Fig. S3.** Percentage of meiotic stages in (A) WT and *cdkg1-1* grown at 12 and 23 °C as judged by  $\alpha$ -Asy1 and  $\alpha$ -Zyp staining ( $n$  cells > 39); (B) WT and *cdkg1-1cycl1-1* ( $n > 49$ ) grown at 12 °C.





**Fig. S5.** *CDKG1* genetically interacts with *CYCLINL*. (A) Fertility in WT and the double-mutant *cdkg1-1/cyclL1-1*, grown at 12 °C (B) Immunolocalization of the SC proteins ASY1 (green) and ZYP1 (red) in nuclei at different stages of meiosis as indicated. DAPI-stained chromatin is shown in blue. (Scale bar, 2 μm.) (C) Pollen viability in WT, *cdkg1-1* single mutant, and *cdkg1-1/cyclL1-1* double-mutant grown under greenhouse conditions.

**Table S1. Pollen viability as judged by Alexander stain**

	WT, 23 °C			<i>cdkg1-1</i> , 23 °C		
	Live pollen	Dead pollen	Live pollen (%)	Live pollen	Dead pollen	Live pollen (%)
	213	2	99.07	7	29	19.44
	132	1	99.25	6	23	20.69
	225	1	99.56	4	35	10.26
Average			99.29			16.80*
SD			0.25			5.70

\*Significantly different from the WT for  $P < 0.001$ .

