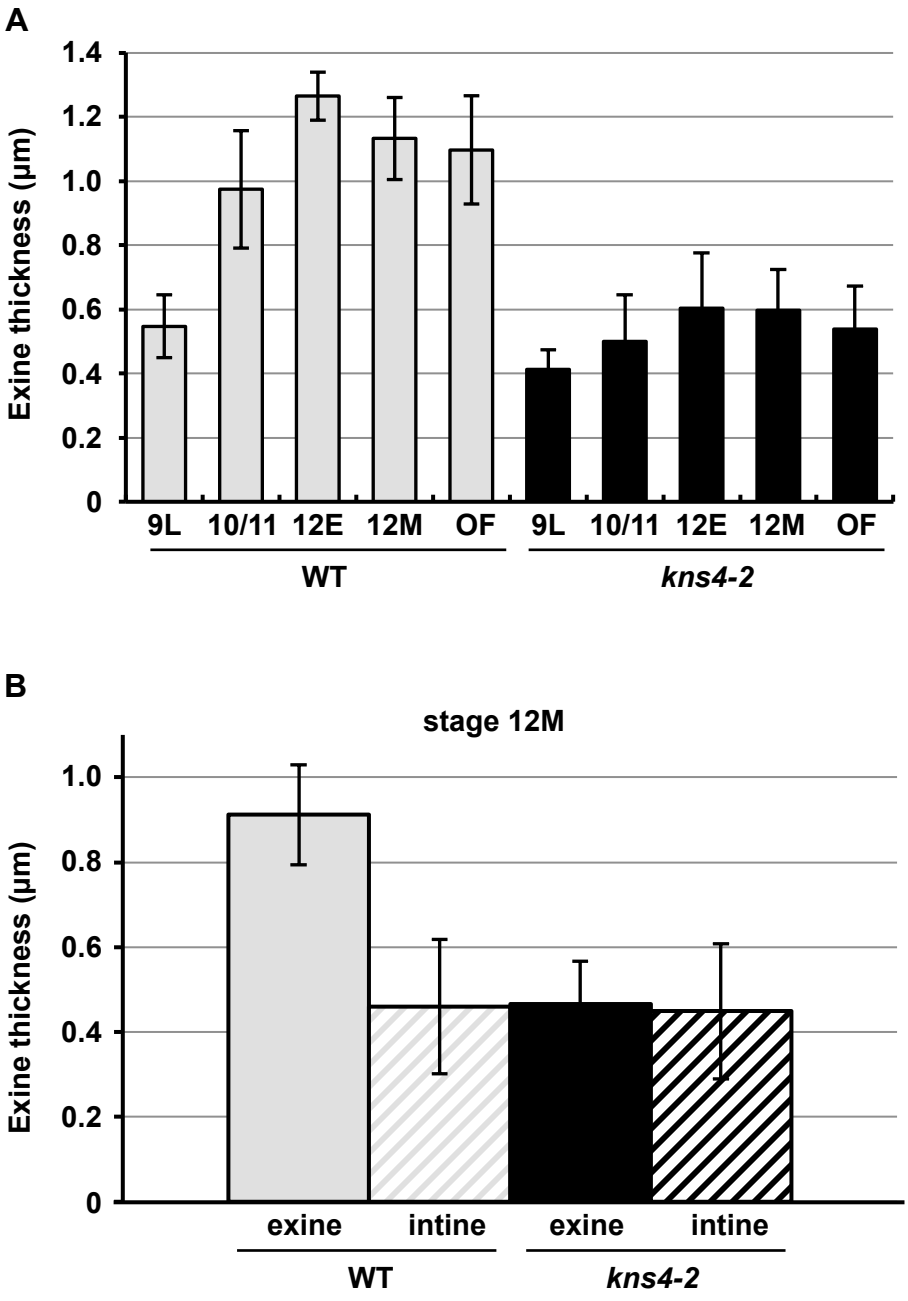
Supplemental Data for "*KAONASHI4* encodes a β-(1,3)-galactosyltransferase involved in the biosynthesis of type II arabinogalactan that mediates pollen exine development in *Arabidopsis thaliana*"
by Suzuki and Narciso et al.

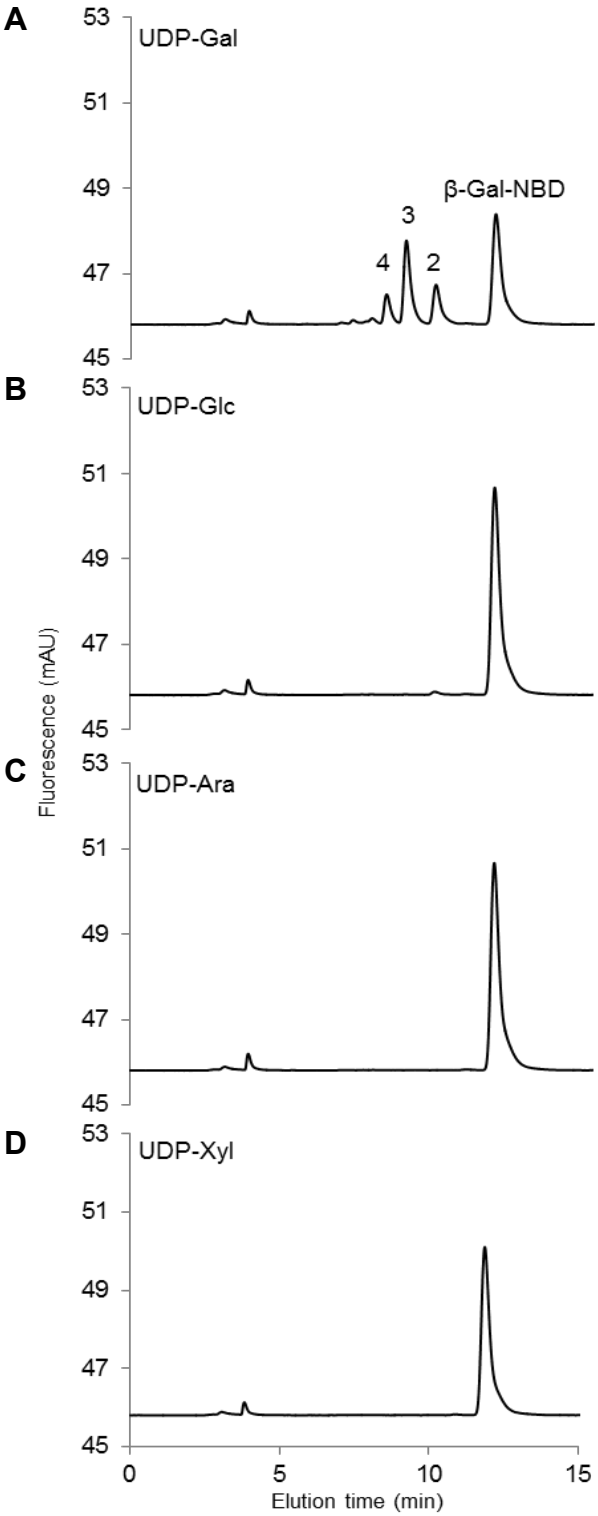



**Supplemental Figure S1.** The average exine thickness measured from CLSM and TEM images.

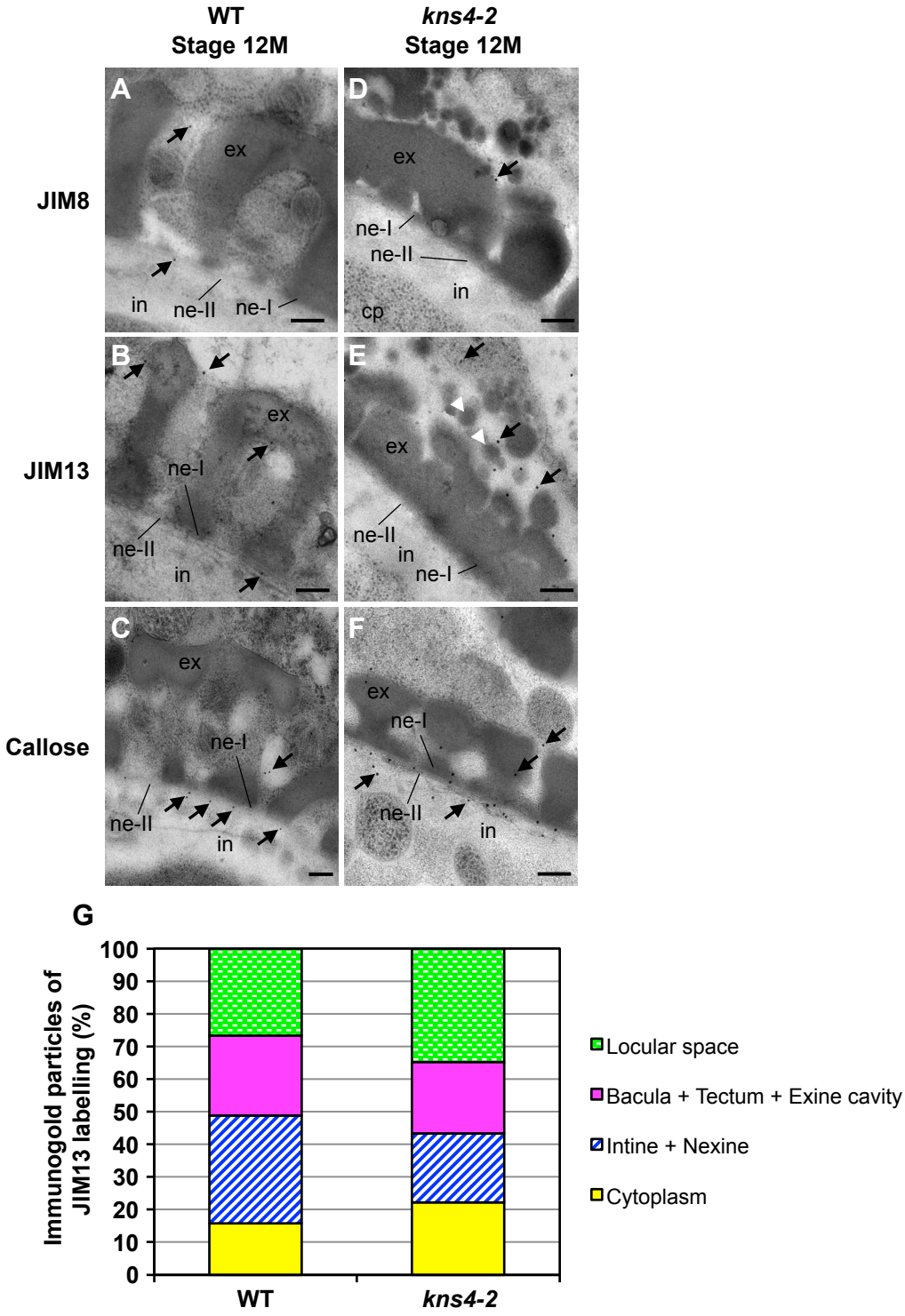
**A**, Exine thickness as measured from CLSM optical sections of 10 individual microspores of both WT and the *kns4-2* mutant at various developmental stages. Three measurements were made on each image. OF, open flower.

**B**, Exine and intine thickness as measured from TEM sections of WT (n=118) and *kns4-2* (n=134) microspores at stage **12M**.

Bar and error bar represent the average +/- SD.




**Supplemental Figure S2.** Enzyme activity of KNS4 using different UDP- sugar donors. RP-HPLC profiles of enzyme assay products after reaction with β-Gal-NBD (acceptor) and indicated UDP-sugars in the presence of KNS4-expressing MMs. Numbers above the peaks indicate the number of Gal residues.




**Supplemental Figure S3.** Transmission electron micrographs of stage 12M WT and *kns4-2* microspores labelled with either anti-AGP (JIM8, JIM13) or anti-callose gold-labelled antibodies.
**A and D,** JIM8 labelling in WT (**A**) and *kns4-2* (**D**) microspore walls.
**B and E,** JIM13 labelling in WT (**B**) and *kns4-2* (**E**) microspore walls. In the *kns4* mutant (**E**), labelling of the sporopollenin granules (white arrowheads) was also seen.
**C and F,** Callose labelling in WT (**C**) and *kns4-2* (**F**) microspore walls.
**G,** Percentage of immuno-gold counts of JIM13-labelled sections of WT (102 images, 4788 gold particles) and *kns4-2* (89 images, 3180 gold particles) microspore walls.
Immuno-gold particles are indicated by arrows. Exine, ex; intine, in; nexine I, ne-I; nexine II, ne-II. Scale bars = 0.2 µm.