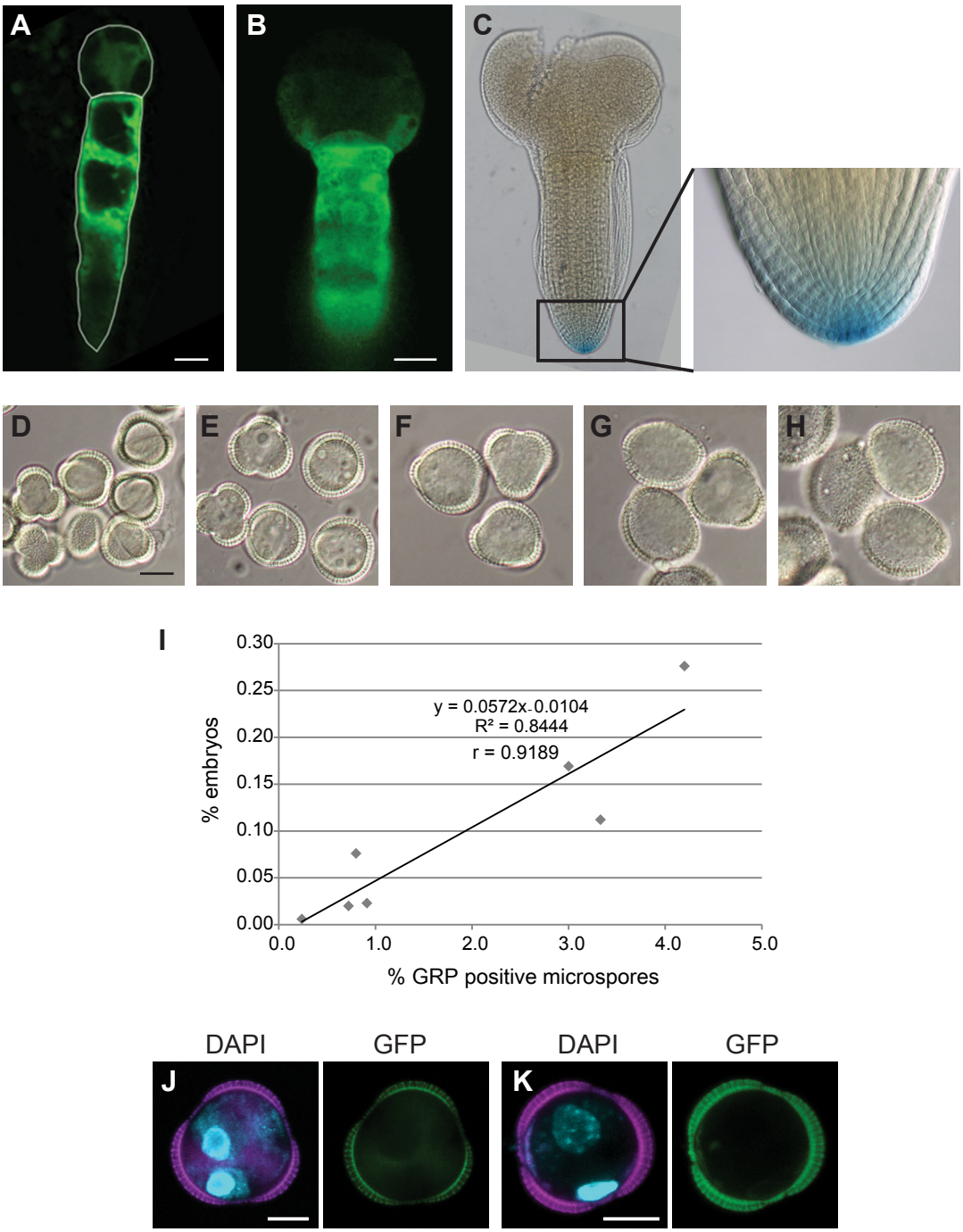


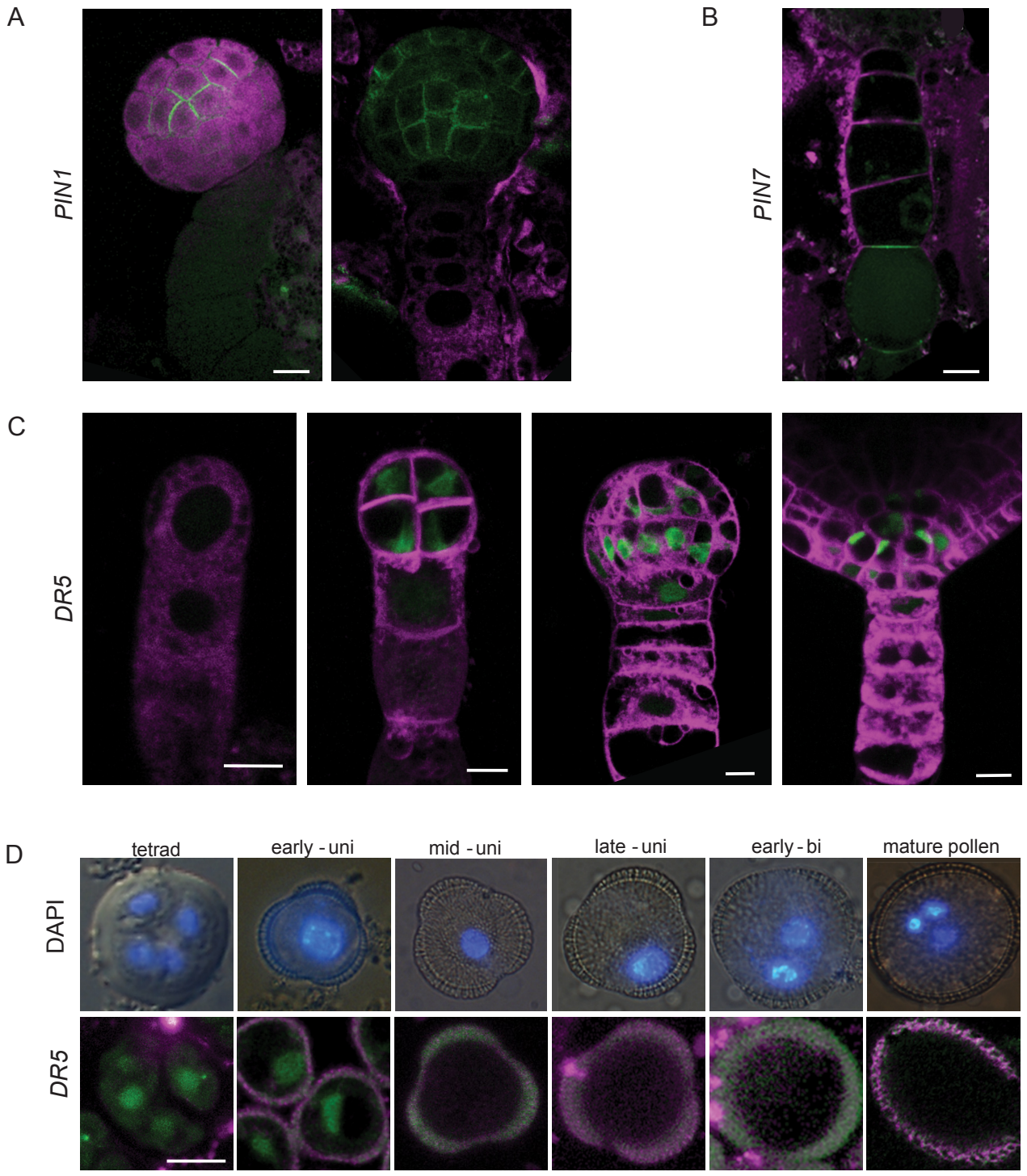
Supplemental Figure 1. *proGRP:GFP-GUS* expression.

(**A-C**) Embryo development. (**A**) One-cell stage embryo proper. GFP is expressed in the apical cell and suspensor. (**B**) Globular embryo. GFP is expressed in the suspensor and basal domain of the embryo proper. (**C**) Cotyledon stage embryo. The insert shows GUS staining in the basal tier of the columella root cells.

(**D-H**) Pollen development. (**D**) Mid-uninucleate microspores. (**E**) Late-uninucleate microspores. (**F**) Early binucleate pollen. (**G**) Trinucleate pollen. (**H**) Mature pollen from dehiscent anthers. (**A-H**) Bar=10μm

(**I**) Correlation between the percentage of *GRP*-positive structures and the final embryo yield.

(**J-K**) *proGRP:GFP-GUS* expression in microspore culture. (**J**) Symmetrically-divided microspore that does not show *GRP* expression. (**K**) Pollen-like structure that does not show *GRP* expression.



Supplemental Figure 2. Expression of auxin and embryo reporters in *B. napus* embryos and pollen.

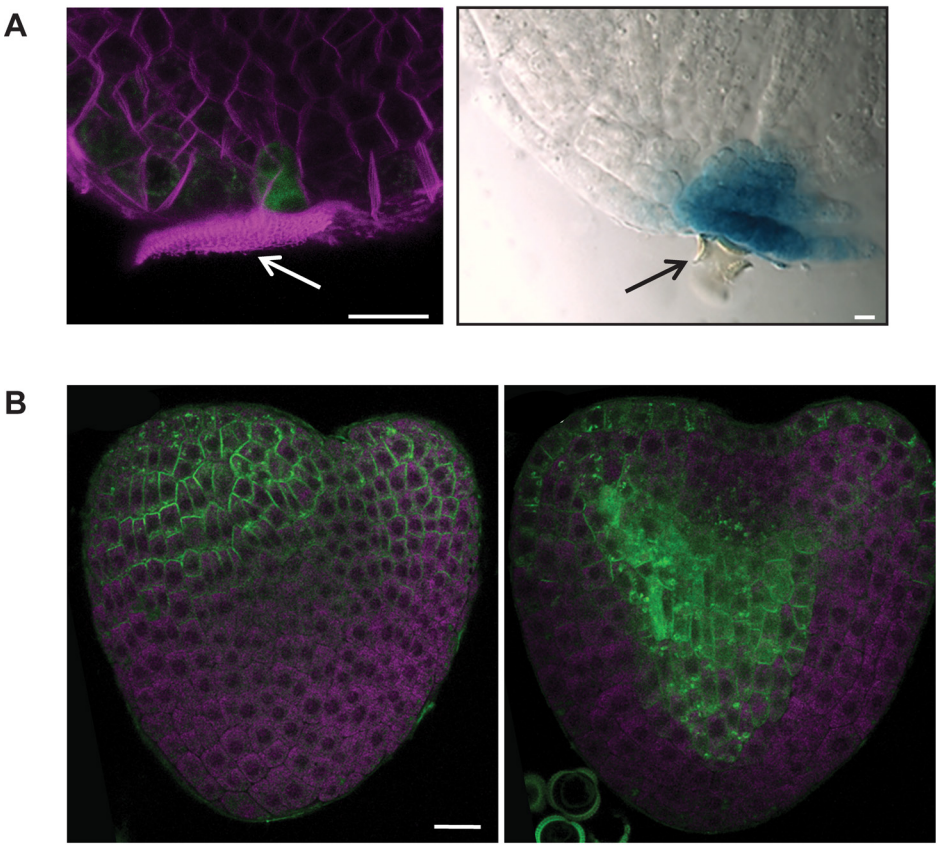
(**A**) PIN1-GFP expression in the embryo proper.

(**B**) PIN7-GFP expression in the suspensor.

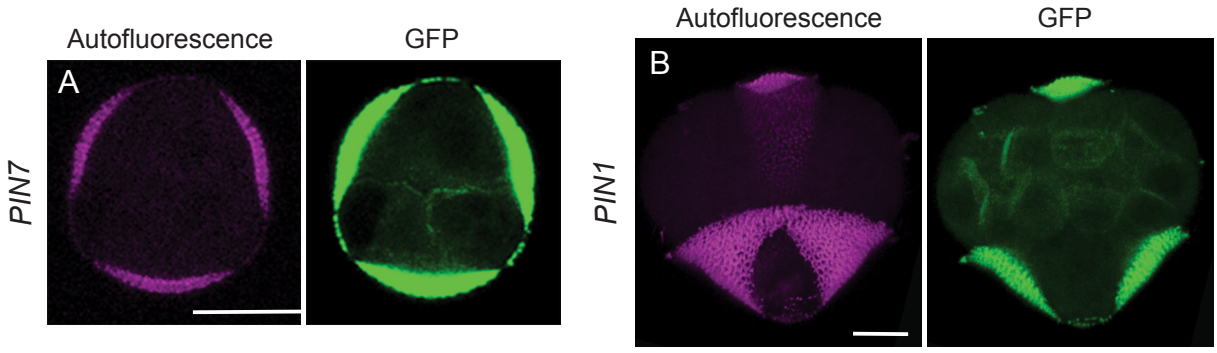
(**C**) *proDR5:GFP* expression in the embryo is observed from the 8-celled stage onward.

(**D**) *proDR5:GFP* is expressed in meiocytes and in early uninucleate microspores, but not at later stages of microspore and pollen development.

Bar=10µm



Supplemental Figure 3. *GRP* and *PIN1* expression in microspore embryos after exine rupture.
(**A**) Expression of *proGRP:GFP-GUS* is associated with the exine remnants. *proGRP*-driven GFP (left) and GUS (right) expression. Arrow, exine remnants.
(**B**) Expression of *proPIN1:PIN1-GFP* in heart stage microspore embryos. PIN1-GFP in the protodermal cells (left) and in the provasculature (right).
Bar=20μm



Supplemental Figure 4. Expression of *proPIN1:PIN1-GFP* and *proPIN7:PIN7-GFP* in two-domain, exine-enclosed embryos.

(**A**) PIN7:GFP expression.

(**B**) PIN1:GFP expression.

Autofluorescence (magenta) and GFP (green).

Bar=20µm