Title: Auxin polar transport is essential for the development of zygote and embryo in *Nicotiana tabacum* L. and correlated with ABP1 and PM H^+-ATPase activities

Running Title: Auxin, ABP1, PM H^+-ATPase and embryo development

Author: Dan Chen, Yujun Ren, Yingtian Deng, Jie Zhao*

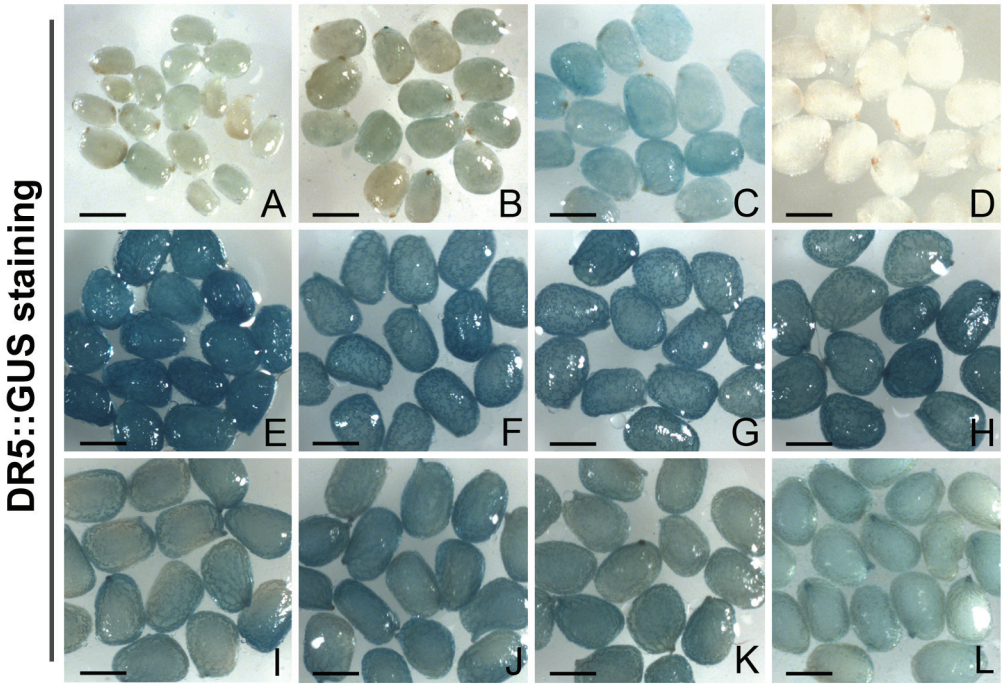
Address: Key Laboratory of the Ministry of Education for Plant Developmental Biology, College of Life Sciences, Wuhan University, Wuhan 430072, China

* Corresponding Author

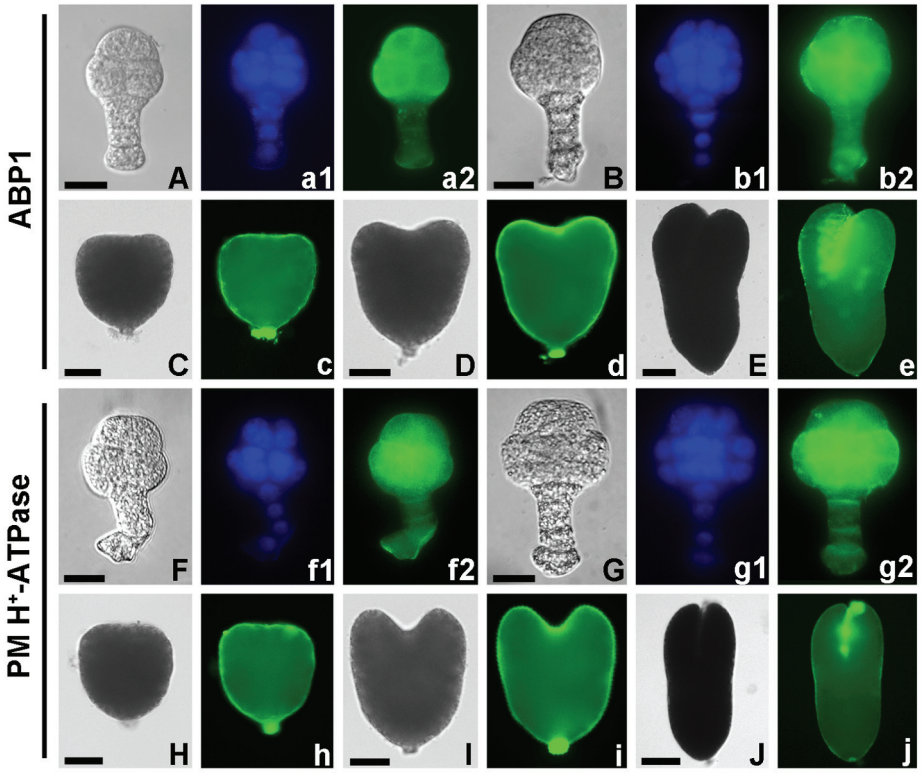
Email: jzhao@whu.edu.cn

Tel: +86-27-68756010

Fax: +86-27-68756010



Supplementary Fig. 1. Auxin-dependent *DR5::GUS* expression in transformed tobacco ovules. (A-C and E-L) Auxin-dependent *DR5::GUS* expression in zygote, 2-celled, 8-celled, early, middle and late globular, transition-stage, heart-shaped, early torpedo-shaped, late torpedo-shaped and mature proembryo stage of ovules, respectively. (D) The control ovules in wide-type plant had no GUS signal, and the stage of these ovules was the same to Fig. 1(C). Bar=500 μm.



Supplementary Fig. 2. Immunolocalization of ABP1 and PM H^+-ATPase in normal tobacco embryos without treatment *in vitro*. (A-J) Bright-field images. (A, B, F and G) Normal early globular embryos from the culture of 3 DAP ovules. (C, H) Normal undifferentiated embryos from the culture of 5 DAP ovules. (D, E, I and J) Normal differentiated embryos from the culture of 5 DAP ovules. (a1, b1, f1 and g1) The corresponding DAPI blue fluorescence images in (A, B, F and G). (a2, b2 and c-e) The corresponding ABP1 immunofluorescence images in (A-E). (f2, g2 and h-j) The corresponding PM H^+-ATPase immunofluorescence images in (F-J). (A, B, F and G) Bar=20 μm; (C-E and H-J) Bar=40 μm.