

**Figure 1. RXLR effctors as molecular markers labeling different host compartments during P. infestans infection. (A)** GFP-HaRXL17 labeles peri-haustorial tonoplast **(B)** RFP-AVRblb2 marks the EHM. Haustoria are represented by h. **(C)** Merged channels. Magenta represents plastid fluorescence.



 **Figure 2. RabG3C traffics to the EHM**. **(A)** RFP-AVRblb2 marks the EHM **(B)** YFP-YFP-RabG3C labels both the tonoplast and the EHM. **(C)** Merged YFP and RFP channels. **(D)** Relative intensity plots representing fluorescence intensities of YFP and RFP signals detected across the line drawn from a to b as shown in (C). YFP-RabG3C gives peaks at the tonoplast and the EHM while RFP-AVRblb2 only marks the EHM.





**Figure 3. A selective vacuolar transport to the EHM**. **(A)** RFP-AVRblb2 marking the EHM as control **(B)** StSUC4-GFP (Sucrose transporter GFP fusion) labels the tonoplast but not the EHM. **(C)** Merged GFP and RFP channels. **(D)** Relative intensity plots representing fluorescence intensities of GFP and RFP signals detected across the line drawn as shown in (C). StSUC4-GFP gives fluorescent intensity peaks at the tonoplast while RFP-AVRblb2 peaks the EHM. **(E)** RFP-AVRblb2 marking the EHM as control. **(F)** StSerk3a-GFP labels both the tonoplast and the EHM. **(G)** Merged GFP and RFP channels. **(H)** Relative intensity plots representing fluorescence intensities of GFP and RFP signals detected across the line drawn as shown in (G). StSerk3a-GFP gives peaks at the tonoplast and the EHM while RFP-AVRblb2 only marks the EHM.



**Figure 4. StSerk3a localizes to the late endosomes at EHM**. **(A)** YFP-RagG3C labels tonoplast, EHM and the late endosomes at EHM **(B)** StSerk3a-RFP labels the plasma membrane (PM), tonoplast, late endosomes and the EHM.  **(C)** Merged YFP and RFP channels showing co-localization of YFP-RabG3C and StSerk3a-RFP at the EHM, tonoplast and late endosome at EHM (orange arrowhead). **(D)** Relative intensity plots representing fluorescence intensities of YFP and RFP signals detected across the line drawn as shown in (C). YFP-RabG3c and StSerk3a-RFP both gives fluorescent intensity peaks at the tonoplast and the EHM.