

RESEARCH

Quantitative modelling of legume root nodule primordium induction by a diffusive signal of epidermal origin that inhibits auxin efflux

Eva E Deinum^{1*}, Wouter Kohlen² and René Geurts²

*Correspondence:

eva.deinum@wur.nl

¹Mathematical and Statistical methods group, Wageningen University, Droevendaalsesteeg 1, 6708 PB Wageningen, the Netherlands

²Laboratory for Molecular Biology, Wageningen University, Droevendaalsesteeg 1, 6708 PB Wageningen, the Netherlands
Full list of author information is available at the end of the article

Abstract

Supplementary information: figures S1 to S6

Additional Files available online

Additional file 1 — Supplementary movie 1
1 hour time lapse movie of fig. 2C

Additional file 2 — Supplementary movie 2
1 hour time lapse movie of fig. 2D

Additional file 3 — Supplementary movie 3
1 hour time lapse movie of fig. 2E

Additional file 4 — Supplementary movie 4
1 hour time lapse movie of fig. 2F

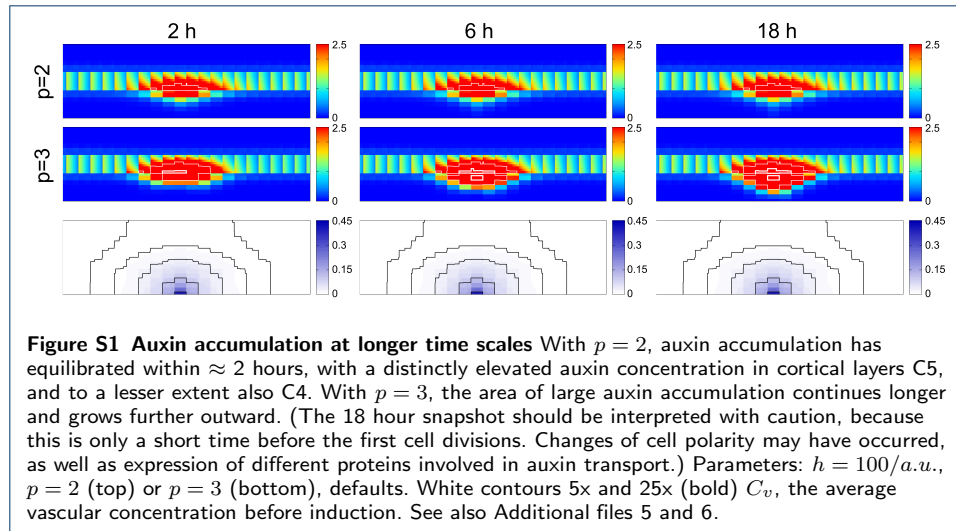
Additional file 5 — Supplementary movie 5
30 hour time lapse movie of fig. 2D / S1

Additional file 6 — Supplementary movie 6
30 hour time lapse movie of fig. 2E / S1

Additional file 7 — Supplementary movie 7
30 hour time lapse movie of fig. S2A-F

Additional file 8 — Supplementary movie 8
30 hour time lapse movie of fig. S2G-I

Additional file 9 — Supplementary figures S1 to S6
(this file)



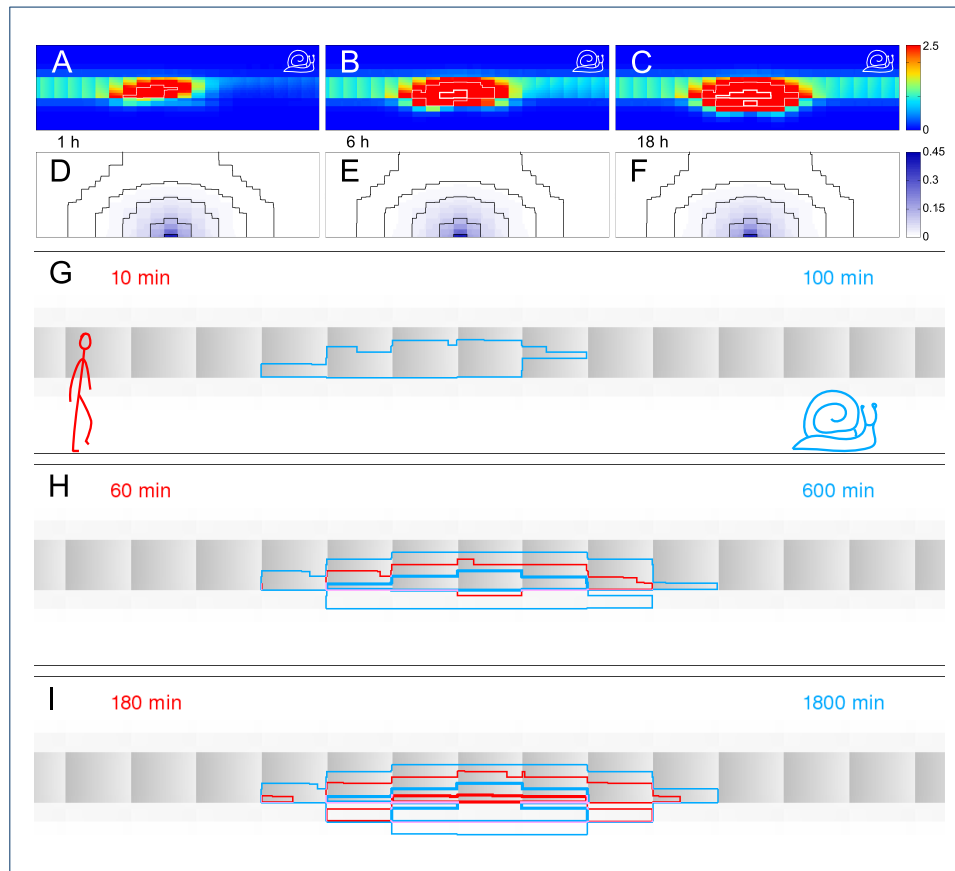


Figure S2 Auxin accumulation with reduced ("slowed down") auxin transport A-C: Induction of auxin accumulation in case of slowed down auxin transport dynamics ($P_{in,fl}/10$, $P_{e,fl}/10$: 10x lower effective influx and efflux permeabilities). Auxin accumulation still occurs fast enough to be compatible with observed cytological events. D-F: Corresponding DS concentration profiles. See also supplementary movie 7. G-I: Comparison of default (red) and slowed (blue) auxin dynamics ten times later than default. At matched time points, the contours should be similar. Thin contours indicate the $5 \times C_v$ and thick contours indicate the $25 \times C_v$ boundary of auxin accumulation. Overlap between contours is drawn in pink. The slowdown of auxin transport resulted in increased auxin concentrations within the primordium and hence wider contours. Otherwise, the shape of the induced auxin maximum at comparable time points and its degree of left-right asymmetry were similar. Auxin concentrations before induction (default parameters) are indicated in gray, to show the position of root tissues. Regular contours indicate $5 C_v$, bold contours $25 C_v$. See also Additional file 8.

