

Canada

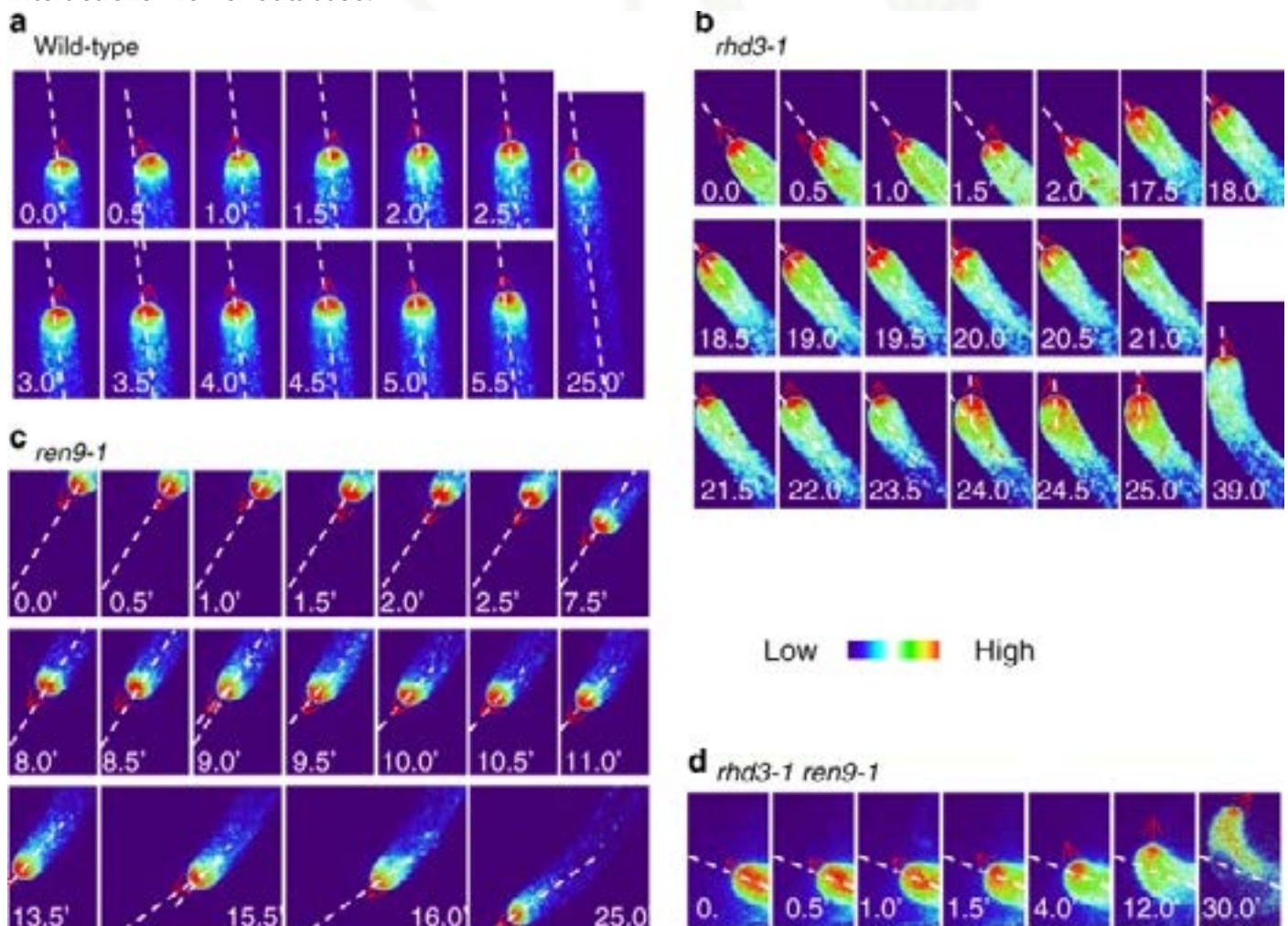
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Please describe any new experimental resources and/or software tools available to Arabidopsis researchers that have been initiated or funded in your country in 2020 or early 2021

The Bio-Analytic Resource has added a number of new resources:

- An Arabidopsis Lipid Map eFP Browser
- A Cell-type specific immunity viewer for roots in ePant.
- Plant Reactome pathways viewer in ePlant.
- A new tool called AGENT for exploring gene regulatory networks and another, Variant Viewer, for natural variation.
- Protein complex information based on mass spectrometry has been integrated into the Arabidopsis Interactions Viewer database.



Heatmap of the targeting of YFP-RAB-A2a in a root hair of wild-type (a), *rhd3-1* (b), *ren9-1* (c), and *rhd3-1 ren9-1* (d)

Please provide a paragraph describing the general impact of the COVID19 pandemic on the scientific community in your country

In response to the pandemic, the three main funding agencies, including the Natural Sciences and Engineering Research Council of Canada (NSERC) which funds most Arabidopsis research in Canada, extended the period for use of research grants as well as for scholarships and fellowships. In addition, they provided funds for a one-year extension of existing grants. Funding supplements to support students, postdoctoral fellows, and research support personnel were also provided to help mitigate the impact.

Selected Publications

- Provart NJ, Brady SM, Parry G, Schmitz RJ, Queitsch C, Bonetta D, Waese J, Schneeberger K, Lorraine AE. Anno genominis XX: 20 years of Arabidopsis genomics. *Plant Cell*. 2020 Dec 29:koaa038. doi: 10.1093/plcell/koaa038. Epub ahead of print. PMID: 33793861.

This review provides an overview of the advances that have been made in Arabidopsis twenty years after the publication of its genome sequence.

- Sun J, Zhang M, Qi X, Doyle C, Zheng H. Armadillo-repeat kinesin1 interacts with Arabidopsis atlastin RHD3 to move ER with plus-end of microtubules. *NatCommun*. 2020 Nov 2;11(1):5510. doi: 10.1038/s41467-020-19343-2. PMID: 33139737; PMCID: PMC7606470.

In this paper the authors identify ARK1 (armadillo-repeat kinesin1) via an enhancer screen of an rdh3 mutant which, like RDH3, impacts the movement of the endoplasmic reticulum on microtubules.

- Bunsick M, Toh S, Wong C, Xu Z, Ly G, McErlean CSP, Pescetto G, Nemrishi KE, Sung P, Li JD, Scholes JD, Lumba S. SMAX1-dependent seed germination bypasses GA signalling in Arabidopsis and Striga. *Nat Plants*. 2020 Jun;6(6):646-652. doi:10.1038/s41477-020-0653-z. Epub 2020 May 25. PMID: 32451447.

This is an elegant study where they authors are able to show that strigolactone dependent germination can bypass the dominant gibberellin dependent germination pathways by negative regulation or inactivation of SUPPRESSOR OF SMAX2 1 (SMAX1).

Major Funding Sources

- National Science and Engineering Research Council (NSERC) (<http://www.nserc-crsng.gc.ca>)

- Genome Canada (<http://www.genomecanada.ca/en/>)

- New Frontiers in Research Fund (<https://www.sshrc-crsh.gc.ca/funding-financement/nfrf-fnfr/index-eng.aspx>)